BENTHIC INVERTEBRATE ASSESSMENT IN WABAMUN LAKE, NOVEMBER 2002

Stantec

Alberta Environment

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Benthic Invertebrate Assessment in Wabamun Lake, November 2002

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Executive Summary

Two TransAlta Utilities Corporation power generating plants are located on the shores of Wabamun Lake. The plants use a local supply of coal which is strip mined within the watershed. The Wabamun Power Plant is located on the north shore near the village of Wabamun and the Sundance Power Plant on the opposite south shore. There are three major point source discharges to Wabamun Lake through canals including a thermal discharge and mine drainage discharge from the Wabamun Plant on the north shore and a water discharge from the Wabamun Lake Water Treatment Plant on the south shore. Of the three major point source discharges to Wabamun Lake, the influence of the thermal effluent on aquatic vegetation and invertebrate fauna has been documented, however, the effects from the two other sources on local invertebrate fauna have not been documented.

A study to determine the effects of the Ash Lagoon discharge on the north shore and the Wabamun Lake Water Treatment Plant discharge on the south shore was commissioned in the fall of 2002. The objective of the study was to determine if these two discharges have had an impact on the benthic invertebrate distribution in the immediate vicinity of the discharges.

The study area consisted of two areas, one on the north shore of Wabamun Lake by the Ash Lagoon discharge from the Wabamun Plant and the other on the south shore by the water discharge from the Wabamun Lake Water Treatment Plant. The sampling design consisted of sampling six sites in Wabamun Lake in each discharge area and six sites in each background (control) area. One site was also sampled in the Ash Lagoon and one in each of the discharge canals.

Benthic invertebrate samples were collected with an Ekman grab (0.023 m^2) with each sample consisting of two Ekman grabs (i.e., for a sampling area of 0.046 m^2). Five samples were collected at each site. Variable means were calculated to represent the mean response for the site and among the site variability was used to determine statistical differences between areas. Water depth, qualitative observations of substrate characteristics, temperature, pH, conductivity and dissolved oxygen were recorded at each site.

Substrate composition in the Ash Lagoon consisted mainly of a black-grey silt (coal fines), while the discharge canal consisted of silt and organics. In the Ash Lagoon area the lake substrates consisted mainly of silt and organics, with some fine sand and flakes of coal in the background area. A hydrogen sulphide type of odour was present in the lake especially in the Ash Lagoon discharge area. In the Wabamun Lake Water Treatment Plant discharge canal substrate consisted mainly of silt and organics with a slight hydrocarbon-type odour. In the Wabamun Lake Water

Treatment Plant discharge area the lake substrates consisted of fine sand, silt, organics, flakes of coal and small amounts of macrophytes, while in the background area the substrate consisted mainly of sand, silt and organics, with coal flakes and macrophytes at one site. No specific odour was apparent, except for an organic-type odour (decaying organic matter) at some sites.

The pH values of both the Ash Lagoon and Wabamun Lake Water Treatment Plant study areas were within the Canadian Water Quality Guidelines (CWQG), however, the pH of most of the sites was just above the Surface Water Quality Guidelines for use in Alberta (SWQGA). Conductivity was lower in Wabamun Lake in both the Ash Lagoon and Wabamun Lake Water Treatment Plant study areas than in the Ash Lagoon and both discharge canals. The conductivity indicated that there was some influence of both discharges into the lake. Dissolved oxygen in Wabamun Lake, the Ash Lagoon and the discharge canals indicated that the water was well oxygenated during the November field survey. These dissolved oxygen values were well above the SWQGA and CWQG minima of 5 and 5.5 ppm, respectively.

A total of 128 taxa of benthic invertebrates was identified (most to the generic level) from the Wabamun Lake samples. Of these, 120 taxa were identified from the Ash Lagoon area and 101 from the Wabamun Lake Water Treatment Plant area. The fauna consisted of various Insecta (mayfly nymphs, caddisfly larvae, fly larvae, midge larvae, beetles, water boatmen, aquatic moths, dragonfly nymphs, damselfly nymphs), Arachnida (water mites), Crustacea (water fleas, copepods, seed shrimps, scuds), Oligochaeta (aquatic earthworms), Hirudinea (leeches), Nematoda (roundworms), Gastropoda (snails), Pelecypoda (clams), Turbellaria (planarians and microflatworms), Hydrozoa (hydras) and Tardigrada (water bears). These are typical fauna generally found in shallow fairly productive lakes in Alberta (Mitchell and Prepas 1990). In comparison nearly 200 similar types of bottom dwelling and vegetation inhabiting organisms were observed in studies conducted between 1972 and 1975 in Wabamun Lake (Rasmussen 1979).

In the Ash Lagoon the dominant taxa consisted of Chironomidae and Crustacea, while in the discharge canal Chironomidae, 'other Arthropoda', 'other groups' and Crustacea prevailed. In the lake, the dominant taxa consisted of Chironomidae, Crustacea and other group taxa.

The abundance and richness of organisms in the Ash Lagoon was higher than would have been expected on a substrate consisting mainly of a deposition of coal fines. The Ash Lagoon was dominated by Chironomidae and Crustacea. The discharge canal had higher abundance and richness (variety) of organisms than the Ash Lagoon. A similar range of abundance and richness of organisms was found in Wabamun Lake as in the discharge canal. Wabamun Lake was dominated by Crustacea and Chironomidae, while the discharge canal was dominated by Oligochaeta, Chironomidae and Crustacea. In the lake, the abundances of

Chironomidae, Oligochaeta and Nematoda were significantly higher in the discharge area than in the background area.

The total biomass was considerably higher in the discharge canal than in the Ash Lagoon and in the lake. There was a significantly higher total biomass in the discharge area than in the background area of the lake, although the total abundance of organisms was not significantly different. The higher biomass can occur partly as a result of higher numbers of organisms, and can also be related to the size of the organisms.

There were differences in benthic community structure among the Ash Lagoon, the discharge canal and Wabamun Lake. Smaller differences in benthic community structure occurred between the discharge and background areas in the lake. This was reflected in the feeding group structure where the percentage of detritivore/herbivores was significantly higher and the percentage of omnivores significantly lower in the discharge than background area of the lake.

In the Wabamun Lake Water Treatment Plant discharge canal the dominant taxa consisted of Chironomidae, Crustacea, 'other groups' and Ephemeroptera/ Trichoptera. In the lake, the dominant taxa consisted of Chironomidae, Crustacea and 'other groups'.

The Wabamun Lake Water Treatment Plant discharge canal was dominated by Crustacea, Nematoda, Chironomidae and Oligochaeta. Wabamun Lake was dominated by Crustacea, Chironomidae and Nematoda, followed by Oligochaeta and 'other groups'. A similar range of total abundance and total richness of organisms was found in the lake as in the discharge canal. In the lake, the richness of Ephemeroptera/ Trichoptera, Oligochaeta and 'other groups' was significantly higher in the discharge area than in the background area, while the richness of 'other Arthropoda' and Crustacea was significantly lower in the discharge area than in the background area. The abundance of Chironomidae was significantly lower in the discharge area than in the background area, while the abundance of Oligochaeta was significantly higher in the discharge area than in the background area.

The mean total biomass in the Wabamun Lake Water Treatment Plant discharge canal was higher than in Wabamun Lake. There was no significant difference in mean total biomass between the discharge and background areas in the lake.

There were differences in benthic community structure between the Wabamun Lake Water Treatment Plant discharge canal and Wabamun Lake. Smaller differences in benthic community structure occurred between the discharge and background areas in the lake. The percentage of detritivores was significantly higher and the percentage of detritivore/herbivores significantly lower in the discharge than background area.

In conclusion, the benthic invertebrate survey indicated that there were some effects in the areas of the Ash Lagoon and the Wabamun Lake Water Treatment Plant discharges when compared to respective background areas in the lake. Overall, differences in the invertebrate community from the Ash Lagoon discharge area sites and background sites were slight and not indicative of a toxic effect from the Ash Lagoon discharge, however, signs of mild enrichment were apparent. The richness and total abundance of invertebrates were not significantly different between the discharge sites and the background sites, but the invertebrate biomass and the abundance of midges, aquatic earthworms and round worms were higher at the discharge sites, probably as a result of mild nutrient enrichment. There were some significant differences between the invertebrate community from the Wabamun Lake Water Treatment Plant discharge sites and background sites. The differences between the discharge and background areas of the lake may have been related to the different water quality of the Wabamun Lake Water Treatment Plant discharge, although differences may have also been related to habitat (substrate and the presence of macrophytes).

1.0 Introduction

Two TransAlta Utilities Corporation (TransAlta) power generating plants are located on the shores of Wabamun Lake about 60 km west of Edmonton and just south of Highway 16. The plants use a local supply of coal which is strip mined within the watershed. The Wabamun Power Plant is located on the north shore near the village of Wabamun and the Sundance Power Plant on the opposite south shore. The Wabamun Plant uses lake water for cooling and heated effluent is returned to the lake through a canal. Mine drainage also enters the lake after settling in several ponds through a separate canal. The Sundance Plant uses a large cooling pond near the lakeshore. Make-up water for this pond is pumped from the North Saskatchewan River and blow-down water is returned to the river. TransAlta's operation has contributed to the decline of Wabamun Lake's water level. The Wabamun Lake Water Treatment Plant, which is operated by TransAlta, discharges water on the south side of the lake through an open canal in an attempt to repay TransAlta's debt to the lake. The water is treated to a level equivalent to drinking water.

Wabamun Lake is a large, shallow lake that is 19.2 km long and 6.6 km wide (Mitchell and Prepas 1990). The littoral zone extends to the 5 m depth contour and includes 31% of the lake bottom (Haag and Gorham 1979). Sandy areas are found at depths less than 2 m, with soft clay or organic sediments over most of the lake bottom (RL&L 1987). The lake is mildly eutrophic (Mitchell and Prepas 1990).

The water quality of Wabamun Lake has been studied since 1968 (Mitchell and Prepas 1990). Investigations have included the effects of thermal discharges from the two power plants (Nursall et al. 1972, Gallup and Hickman 1973, Beak 1980). Studies by Alberta Environment on the limnology of the lake and its nutrient sources began in 1980 (Alberta Environment n.d., Mitchell 1984, 1985).

The abundant macrophytes in Wabamun Lake were surveyed between 1973 and 1977. The macrophytes were found to be distributed on the basis of sediment texture and exposure to wind and wave action (Haag and Gorham 1979). The dominant emergent vegetation was the common great bulrush (*Scirpus validus*). The dominant submergent species in exposed areas included stonewort (*Chara* sp.) and northern watermilfoil (*Myriophyllum exalbescens*). In areas of less exposure and finer grained sediments, the dominant submergent species included pondweeds (*Potamogeton vaginatus, P. richardsonii*) and watermilfoil, while Sago pondweed (*P. pectinatus*) was confined to fine-textured sediments. Sheltered habitats had higher total plant cover and greater diversity of species than exposed habitats.

The macroinvertebrate fauna of Wabamun Lake was studied between 1972 and 1975 (Rasmussen 1979). Nearly 200 different taxa of benthic and vegetation-inhabiting organisms (most to the species level) were identified from the lake. Chironomidae (midge) larvae was the dominant taxon present.

There are currently three major point source discharges to Wabamun Lake, including the thermal discharge from the Wabamun Plant, the Ash Lagoon discharge from the Wabamun Plant and the Wabamun Lake Water Treatment Plant discharge. The influence of the thermal effluent on aquatic vegetation and invertebrate fauna has been documented, however, the effects from the two other sources on local invertebrate fauna have not been documented.

A study to determine the effects of the Ash Lagoon discharge on the north shore and the Wabamun Lake Water Treatment Plant discharge on the south shore was commissioned in the fall of 2002. The objective of the study was to determine if these two discharges have had an impact on the benthic invertebrate distribution in the immediate vicinity of the discharges.

2.0 Methodology

2.1 STUDY AREA

The study area consisted of two areas, one on the north shore of Wabamun Lake by the Ash Lagoon discharge from the Wabamun Power Plant and the other on the south shore by the water discharge from the Wabamun Lake Water Treatment Plant (Figure 1). The Ash Lagoon discharge flows through a discharge canal into a flooded marshy area of the lake. The discharge is diffused through the western portion of the marshy area before entering the lake. The Wabamun Lake Water Treatment Plant discharge flows through a canal directly into the lake.

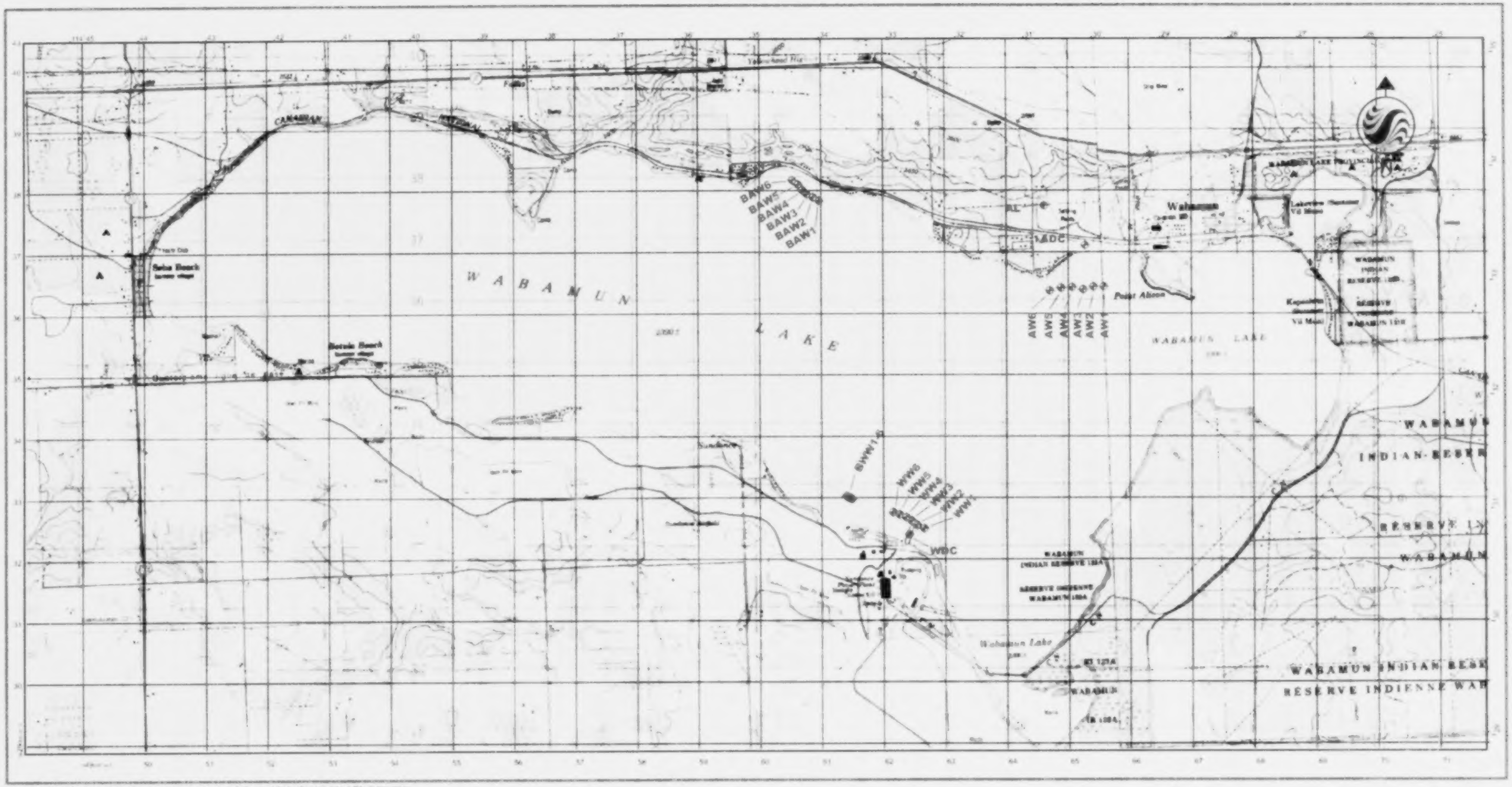
A field reconnaissance of the areas was conducted on November 6, 2003 prior to sampling to determine site locations. In the area of the Ash Lagoon discharge, the substrate immediately adjacent to the marsh consisted of a thick layer (about 50 cm) of aquatic vegetation (mainly *Chara* sp.), which extended out about 150 - 250 m from the edge of the marsh. Benthic invertebrate samples could not be successfully collected in this area as had been planned. A discussion was held with Alberta Environment to revise the number of sites and sampling locations in each area (A.M. Anderson, pers. comm.). The sampling design was revised to sample six sites in Wabamun Lake along the edge of the aquatic vegetation, parallel to the shoreline. The area immediately to the west of the marsh in the bay was frozen and could not be sampled. Six sites were sampled in a background area to the west of the Ash Lagoon area. One site was also sampled in the Ash Lagoon and one in the discharge canal from the Ash Lagoon.

For the Wabamun Lake Water Treatment Plant area, aquatic vegetation growth in the discharge area was sparse and did not interfere with sample collection. However, substrate similar to the discharge area was difficult to find in the background area along a length of the shoreline. Therefore, the six sites in the background area were sampled over a shorter distance than for the six sites in the discharge area. One site was also sampled in the discharge canal.

The site positions were recorded in the field using a Garmin *etrex* Summit Global Positioning System (GPS). The accuracy of the GPS unit is ± 15 m. The field sampling survey was conducted between November 7 and 15, 2002.

2.2 PHYSICAL VARIABLES

Physical variables can affect the occurrence and distribution of benthic invertebrates. Therefore, sites were located in areas as similar as possible with regard to physical


W A B A M U N
L A K E
Wabamun Lake
Wabamun
Point Alison
Seba Beach
Betula Beach
Canadian
BAW6
BAW5
BAW4
BAW3
BAW2
BAW1
AL
ADC
AW6
AW5
AW4
AW3
AW2
AW1
SWW1
WW6
WW5
WW4
WW3
WW2
WW1
WDC
Sundance
WABAMUN INDIAN RESERVE 133B
WABAMUN INDIAN RESERVE 133A
RESERVE INDIENNE WABAMUN 133A
WABAMUN INDIAN RESERVE
RESERVE INDIENNE WABAMUN
WABAMUN INDIAN-RESERVE
WABAMUN LAKE PROVINCIAL PARK
Lakeview
Kapasiwin

Legend

✣ BENTHIC INVERTEBRATE SAMPLING LOCATION

Scale
1:61758

Stantec

Client/Project:
ALBERTA ENVIRONMENT
BENTHIC INVERTEBRATE ASSESSMENT
WABAMUN LAKE, ALBERTA

Figure No.
1.0

Title:
Benthic Invertebrate Sampling Locations

habitat. Water depth was measured and a qualitative description of substrate composition (colour, texture and odour) was recorded for each sampling site.

2.3 CHEMICAL VARIABLES

Water chemistry sampling consisted of field measurements of pH with a pHTestr2™ Oakton pH meter (± 0.1 pH units), conductivity and water temperature with a YSI Model 30 conductivity/temperature meter (± 1 μmhos/cm and ± 0.1°C), and dissolved oxygen with a YSI Model 57 dissolved oxygen meter (± 0.2 ppm).

2.4 BENTHIC INVERTEBRATE SAMPLING

Benthic invertebrate samples were collected with an Ekman grab (6 x 6 inch or 0.023 m^2). Five samples were collected at each site in an attempt to ensure that the benthic invertebrate community present was adequately assessed and to provide an acceptable level of confidence on the data (Needham and Usinger 1956, Wilhm and Dorris 1968, Alberta Environment 1990). The five samples were collected within an area of approximately 5 m x 2 m (all samples were taken from the boat anchored at one site).

Each sample consisted of a composite of two Ekman grabs (i.e., for a sampling area of 0.046 m^2) which were collected within approximately 1 m of each other. Ekman samples were taken with care to minimize the amount of washout, shock waves, substrate disturbance and loss of organisms. Only Ekman grabs which were completely closed (jaws and the top opening) and had a minimum of 1 L of material were accepted for sample processing. The samples were transferred into a basin and the interior of the grab rinsed thoroughly into the basin. The sample material was then concentrated over a 210 μm mesh standard bucket sieve, placed in jars and preserved in 10% formalin for laboratory processing. Samples were labeled and chain-of-custody forms were provided with samples delivered to the laboratory.

2.5 BENTHIC INVERTEBRATE SAMPLE PROCESSING

The benthic samples were stained with rose Bengal prior to sorting in the laboratory. The benthic samples were sieved into a coarse fraction (> 1 mm) and a fine fraction (0.180 to 1 mm). The coarse fraction was sorted using a whole sort method and the fine fraction using a subsampling method by trained technicians following established protocols (Wrona et al. 1982, Stantec 1998).

The whole sort method consisted of completely and systematically sorting organisms from the coarse fraction on a gridded petri dish under a dissecting microscope at 7 to 10X magnification.

The subsampling method consisted of the cone subsampler described by Wrona et al. (1982). The fine material was placed into an Imhoff cone and water added to provide a total volume of 1 L. This mixture was agitated with an air stone for five minutes to ensure thorough mixing. Subsamples of 25 mL were removed from the cone and systematically sorted for organisms on a gridded petri dish under a dissecting microscope. The number of subsamples taken depended on the number of organisms present in the subsample (as outlined in established protocols such as Wrona et al. 1982 and Stantec 1998).

A re-sorting of randomly selected sample residues was conducted on 10% of the samples by a different technician to determine the level of sorting efficiency. The number of organisms initially recovered from the sample was expressed as a percentage of the total number after the re-sort (total of initial and re-sort count).

The organisms were identified and counted using dissecting or compound microscopes. Identifications were to the lowest practical taxonomic level (genus, where possible) using current literature and nomenclature by an experienced taxonomist. Microscope slide mounts were prepared for taxa, such as chironomids, which required detailed microscopic examination for identification. The commonest species were usually distinguishable on the basis of gross morphology, requiring only a few mounts as checks, while mounts were made for all less commonly occurring species. The numbers of each taxon occurring in the total fine fraction were obtained by multiplying the counts of each taxon by the volumetric proportion which the subsamples represented of the total fine fraction. These counts were then added to the counts obtained from the coarse fraction for each taxon. Identified organisms were stored in vials for each sample with 70% isopropyl alcohol for archiving. A reference collection was prepared from the fall 2002 samples for the study areas.

The taxa were identified using the following references, as appropriate:

- Ephemeroptera - Edmunds et al. (1976), Provonsha (1990);
- Trichoptera - Wiggins (1977);
- Plecoptera - Baumann et al. (1977), Stewart and Stark (1988);
- Diptera (Chironomidae) - Bode (1983), Epler (1987, 1992), Grodhaus (1987a, 1987b), Jackson (1977), Oliver and Roussel (1983), Oliver et al. (1990), Roback (1985), Walker et al. (1992), Wiederholm (1983, 1986);
- Diptera ('other groups') - McAlpine et al. (1981);
- General References - Brooks and Kelton (1967), Clifford (1991), Edmondson (1959), Klemm (1985), Merritt and Cummins (1996), Pennak (1989), Thorp and Covich (1991), Usinger (1956).

The total biomass (wet weight) of benthic invertebrates was determined for each sample. The biomass of organisms in the coarse and fine fractions of each sample was determined separately, as for the counts. Excess preservative (70% alcohol) was removed from the organisms by placing the organisms on filter paper in a vacuum chamber at -50 kPa for 10 minutes at room temperature (21°C). The weight was then obtained for each taxonomic group in both the coarse and fine fractions on a Mettler ER-182A electronic analytical balance (± 0.0001 g) and combined (coarse and fine fractions) to obtain the total weight for the sample.

2.6 DATA AND STATISTICAL ANALYSES

A species list was compiled of benthic invertebrates identified from the collected samples in Wabamun Lake. The basic variables of total number of taxa (richness), and total number of organisms (per sampler area of 0.046 m^2), converted to total standing crop (per m^2) (abundance), were calculated for each sample and as means for each site (of five samples). The number of taxa and standing crops were also calculated for major taxonomic groups identified from the data results. The total weight of organisms (biomass) was calculated for each sample and means were calculated for each site per m^2. The mean and standard deviation of basic variables were also calculated for each discharge and background area.

Statistical analyses were conducted using one-way analysis of variance (ANOVA) to determine whether means of various benthic invertebrate variables were significantly different between the discharge and background area. The mean value for each site (mean of five field samples) was used as the mean response for the site and the among-site variability was used to determine differences between areas. The significance of the test was determined at $p < 0.05$. The one site sampled in the Ash Lagoon and in the two discharge canals was used for comparison only and was not used in the statistical analyses.

Benthic invertebrate data are generally not normally distributed and rarely satisfy the basic assumptions of parametric statistics. However, tests such as ANOVA are extremely robust and will generally be valid, even on extremely non-normal populations, especially when sample sizes are equal and large and if appropriate transformations are used (Glass et al. 1972, Green 1979, Harris 1975). Transformations are used to normalize data or homogenize variances (Green 1979). The logarithmic transformation, used for the data in this study, tends to be adequate, more comprehensible and biologically more meaningful than other transformations.

Some multivariate methods are not appropriate for statistical interpretation but are graphical or illustrative in nature. Detrended correspondence analysis (DCA) (Hill and Gauch 1980), which was developed for ecological data sets, was used to compare the benthic invertebrate community structure among sites using all species data. The result of this ordination is to group sites into biological units (clusters) determined by faunal assemblages of highest similarity.

DCA is an eigenanalysis ordination technique based on reciprocal averaging (Hill 1973) and is performed with a modified version of DECORANA (PC-ORD) (Hill 1979)

(McCune and Mefford 1999). The arch effect that is generally associated with more than one dimension and the tendency to compress the axis ends relative to the middle in reciprocal averaging is corrected with DCA. Earlier versions of DECORANA were unstable because of lax criteria for stability and a bug in the rescaling algorithm (Oksanen and Minchin 1997). These problems have been corrected in PC-ORD (McCune and Mefford 1999).

A trophic analysis was used to determine any differences in the benthic community feeding group structure between sites. Each taxon was classified into a feeding group of detritivore, herbivore, detritivore/herbivore, carnivore or omnivore. The percent of each feeding group of the total number was calculated for each sample and a mean for each site. The mean and standard deviation was calculated for each discharge and background area. This trophic classification depends on the dominant food consumed and/or feeding mechanisms of the species (Table 1) (modified from Merritt and Cummins 1996).

Table 1. Trophic classification of benthic invertebrates (modified from Merritt and Cummins 1996).

Feeding Group	Dominant Food	Feeding Mechanism
Carnivore (C)	Living animal tissue	Engulfers - whole animals or parts Piercers – attack prey and pierce tissues/cells and suck fluids
Detritivore (D)	Decomposing fine particulate organic matter	Collectors - filterers or suspension feeders – gatherers or deposit (sediment) feeders (includes surface film feeders)
	Decomposing coarse particulate organic matter or vascular plant tissue	Shredders - chewers and wood borers
Herbivore (H)	Living vascular hydrophyte plant tissue	Shredders - chewers and miners
	Periphyton – attached algae and associated material	Scrapers - grazing scrapers of mineral and organic surfaces
	Living vascular hydrophyte cell and tissue fluids or filamentous (macroscopic) algal cell fluids	Piercers – pierce tissues or cells and suck cells
Omnivore (O)	All types – whatever is available	Various types

The feeding group assigned to each taxon was determined from Merritt and Cummins (1996) for the insects and from the available literature for the other organisms. The limited available literature and research to date does not allow the trophic analysis to be accurate at the species level or to take into account the fact that organisms may change their feeding habits during their life history. The trophic analysis is intended only to provide a general indication of differences in feeding group structure between sites.

Statistical analyses were conducted using Statistix™ (Version 4.0) (Analytical Software 1992). DCA was performed using the PC-ORD program for Windows (McCune and Mefford 1999).

2.7 QUALITY ASSURANCE AND QUALITY CONTROL

A Quality Assurance and Quality Control (QA/QC) program was implemented during this study. Standard Operating Procedures (SOPs) or protocols were used for all field procedures (such as sample collection, sample shipping, sample storage, chain-of-custody forms), laboratory procedures (such as sample sorting, subsample size, re-sorting, reference collection) and reporting of data (including data entry checks). Documentation regarding general QA/QC is provided in Appendix A.

3.0 Results and Discussion

3.1 ASH LAGOON

3.1.1 Site Locations

Fourteen sites were located in the Ash Lagoon area (Figure 1) (Table 2) as follows:

- one site in the Ash Lagoon, at about 63 m from the north shore towards the centre of the pond (Site AL);
- one site in the Ash Lagoon discharge canal at about 250 - 300 m from the outlet into the lake and marsh (Site ADC);
- six sites in Wabamun Lake in the area of the Ash Lagoon discharge at 130 - 250 m out from the edge of the marsh, with sites located from east to west over a distance of 875 m (Sites AW1, AW2, AW3, AW4, AW5 and AW6); and
- six sites in Wabamun Lake in the background area at about 55 –100 m out from a marshy area, with sites located from east to west over a distance of 550 m (Sites BAW1, BAW2, BAW3, BAW4, BAW5 and BAW6).

3.1.2 Physical Variables

The physical variables of water depth and substrate composition were kept as similar as field conditions allowed between sampling sites and between areas to reduce intra- and inter-site variability. These physical variables are provided in Appendix B.

The water depth at which samples were collected in the Ash Lagoon was about 2.7 m. The discharge canal was shallower in depth at 0.65 m. The water depth in Wabamun Lake in the area of the Ash Lagoon discharge and the background area at which samples were collected ranged between 2.6 and 3.1 m.

Substrate composition in the Ash Lagoon consisted mainly of a black-grey silt (coal fines), while the discharge canal consisted of silt and organics. In Wabamun Lake in the Ash Lagoon discharge area the substrate consisted of silt and organics with a strong hydrogen sulphide (H_2S) type of odour. In the background area the substrate consisted of silt and organics, but some fine sand and flakes of coal were also present. The H_2S-type odour in the background area was not as strong as in the Ash Lagoon discharge area and at three of the sites the odour was more of an organic (decaying organic matter) odour.

Table 2. Site locations in Wabamun Lake, November 2002.

Site	Latitude	Longitude	Location Description
Ash Lagoon Area			
AL	53° 33.80' N	114° 30.91' W	Ash Lagoon
ADC	53° 33.42' N	114° 30.32' W	Ash Lagoon Discharge Canal
AW1	53° 33.05' N	114° 30.02' W	Wabamun L. - Ash Lagoon Discharge Area
AW2	53° 33.06' N	114° 30.17' W	Wabamun L. - Ash Lagoon Discharge Area
AW3	53° 33.04' N	114° 30.33' W	Wabamun L. - Ash Lagoon Discharge Area
AW4	53° 33.06' N	114° 30.49' W	Wabamun L. - Ash Lagoon Discharge Area
AW5	53° 33.06' N	114° 30.65' W	Wabamun L. - Ash Lagoon Discharge Area
AW6	53° 33.04' N	114° 30.81' W	Wabamun L. - Ash Lagoon Discharge Area
BAW1	53° 33.90' N	114° 34.16' W	Wabamun L. – Background Ash Lagoon Area
BAW2	53° 33.93' N	114° 34.24' W	Wabamun L. – Background Ash Lagoon Area
BAW3	53° 33.96' N	114° 34.33' W	Wabamun L. – Background Ash Lagoon Area
BAW4	53° 34.00' N	114° 34.40' W	Wabamun L. – Background Ash Lagoon Area
BAW5	53° 34.04' N	114° 34.45' W	Wabamun L. – Background Ash Lagoon Area
BAW6	53° 34.09' N	114° 34.54' W	Wabamun L. – Background Ash Lagoon Area
Wabamun Lake Water Treatment Plant Area			
WDC	53° 30.95' N	114° 33.04' W	Water Treatment Discharge Canal
WW1	53° 30.98' N	114° 32.79' W	Wabamun L. - Water Treatment Discharge Area
WW2	53° 31.01' N	114° 32.89' W	Wabamun L. - Water Treatment Discharge Area
WW3	53° 31.05' N	114° 32.97' W	Wabamun L. - Water Treatment Discharge Area
WW4	53° 31.09' N	114° 33.04' W	Wabamun L. - Water Treatment Discharge Area
WW5	53° 31.11' N	114° 33.14' W	Wabamun L. - Water Treatment Discharge Area
WW6	53° 31.13' N	114° 33.23' W	Wabamun L. - Water Treatment Discharge Area
BWW1	53° 31.26' N	114° 33.80' W	Wabamun L. – Background Water Treatment Area
BWW2	53° 31.27' N	114° 33.83' W	Wabamun L. – Background Water Treatment Area
BWW3	53° 31.27' N	114° 33.85' W	Wabamun L. – Background Water Treatment Area
BWW4	53° 31.28' N	114° 33.87' W	Wabamun L. – Background Water Treatment Area
BWW5	53° 31.29' N	114° 33.90' W	Wabamun L. – Background Water Treatment Area
BWW6	53° 31.29' N	114° 33.91' W	Wabamun L. – Background Water Treatment Area

3.1.3 Chemical Variables

Field water quality results for the Ash Lagoon area are provided in Table 3. The pH of the Ash Lagoon and discharge canal was 9.0, while the pH of Wabamun Lake was slightly lower ranging between 8.6 and 8.8 in the discharge and background areas. These values were within the Canadian Water Quality Guideline (CWQG) of 6.5 to 9.0 (CCME 1993), however, the pH of most sites was just above the Surface Water Quality Guideline for Alberta (SWQGA) of 6.5 to 8.5 (Alberta Environment 1999).

Conductivity in the Ash Lagoon was 579 µmhos/cm and in the discharge canal 582 µmhos/cm. Conductivity was lower in both areas of Wabamun Lake ranging from 511 to 534 µmhos/cm in the discharge area and 512 to 514 µmhos/cm in the background area. Several of the higher values recorded in the discharge area may have indicated some influence from the Ash Lagoon discharge canal.

Dissolved oxygen in the Ash Lagoon was 13.7 ppm, which represented supersaturated conditions (113%). In the discharge canal, dissolved oxygen was similar to Wabamun Lake at 11.9 ppm (saturation level of 98%). The dissolved oxygen in Wabamun Lake indicated that it was well oxygenated during the November field survey ranging from 10.9 to 11.7 ppm (saturation levels of 87 to 100%). The percent saturation is a more appropriate comparison of dissolved oxygen levels, since the solubility of oxygen in water is temperature dependent. Water temperature ranged from 1.0 to 7.3°C at sites in the lake. These dissolved oxygen values were well above the SWQGA minimum of 5 ppm and the CWQG minimum which varies from 5.5 to 9.5 ppm (depending on the category of biota and life stage).

The temperature of the water column in Wabamun Lake is usually similar from top to bottom because the surface area is large relative to water depth and the lake is oriented with the prevailing wind (Mitchell and Prepas 1990). The entire water column is normally well oxygenated from May through October (Mitchell and Prepas 1990).

3.1.4 Benthic Invertebrate Sample Processing

As part of the QC program, the re-sorting of benthic sample residues was conducted on 10% of the samples to determine the level of sorting efficiency. The level of sorting efficiency obtained for 14 samples randomly selected from both the Ash Lagoon area and the Wabamun Lake Water Treatment Plant area ranged between 97 and 99% (Appendix C). This sorting efficiency was greater than 90%, as required by Environment Canada for invertebrate community surveys (Environment Canada 1998).

The benthic data showing the number of organisms per sample (in 0.046 m^2) for each identified taxon in the Ash Lagoon area are presented in Appendix D. These data were weighted for subsampled taxa by the appropriate factor. A reference collection of identified benthic invertebrates was prepared for the Wabamun Lake study areas.

Table 3. Field water quality results for Wabamun Lake, November 2002.

Site	Date	pH (units)	Conductivity (µmhos/cm)*	Dissolved Oxygen (ppm)	Dissolved Oxygen (% saturation)	Temperature (°C)
Ash Lagoon Area						
AL	Nov. 7	9.0	579	13.7	113	3.5
ADC	Nov. 7	9.0	582	11.9	98	3.3
AW1	Nov. 8	-	530	11.1	100	7.3
AW2	Nov. 9	8.6	511	11.3	90	1.6
AW3	Nov. 9	-	-	-	-	-
AW4	Nov. 10	8.8	511	10.9	87	1.6
AW5	Nov. 8	8.7	534	-	-	2.0
AW6	Nov. 8	8.7	534	11.6	92	2.2
BAW1	Nov. 10	8.6	512	11.0	87	1.7
BAW2	Nov. 11	8.5	512	11.4	88	1.1
BAW3	Nov. 11	8.6	512	11.4	88	1.1
BAW4	Nov. 11	-	512	-	-	1.1
BAW5	Nov. 11	-	512	-	-	1.0
BAW6	Nov. 11	8.7	514	11.7	91	1.0
Water Treatment Plant Area						
WDC	Nov. 14	8.3	631	11.5	99	5.2
WW1	Nov. 12	8.7	518	-	-	0.6
WW2	Nov. 12	8.9	527	-	-	0.8
WW3	Nov. 12	8.9	516	12.0	92	0.5
WW4	Nov. 13	8.9	514	11.8	90	0.5

(continued)

Table 3. (concluded)

Site	Date	pH (units)	Conductivity (μmhos/cm)*	Dissolved Oxygen (ppm)	Dissolved Oxygen (% saturation)	Temperature (°C)
WW5	Nov. 13	8.9	512	11.8	90	0.5
WW6	Nov. 14	8.9	514	11.8	90	0.5
BWW1	Nov. 15	8.8	516	12.4	95	0.7
BWW2	Nov. 15	8.9	516	12.4	95	0.7
BWW3	Nov. 15	8.9	515	12.3	94	0.8
BWW4	Nov. 15	8.9	515	12.1	92	0.7
BWW5	Nov. 14	8.7	514	11.9	91	0.6
BWW6	Nov. 15	8.8	518	12.2	93	0.6
SWQGA	-	6.5 – 8.5	-	5.0	-	<3°c[a]
CWQG	-	6.5 – 9.0	-	5.5 - 9.5[b]	-	-

a	Not to be increased by more than 3°C above ambient water temperature.
b	Guideline depends on the category of biota and life stage. Cold water biota - early life stage >9.5 ppm and other life stages >6.5 ppm. Warm water biota - early life stage >6.0 ppm and other life stages >5.0 ppm.
SWQGA	Surface Water Quality Guidelines for use in Alberta (Alberta Environment 1999)
CWQG	Canadian Water Quality Guidelines for freshwater aquatic life (CCME 1993)

3.1.5 Benthic Invertebrate Basic Computations

A total of 128 taxa of benthic invertebrates was identified (most to the generic level) from the Wabamun Lake samples (species list in Appendix D). Of these, 120 taxa were identified from the Ash Lagoon area. The fauna consisted of various Insecta (mayfly nymphs, caddisfly larvae, fly larvae, midge larvae, beetles, water boatmen, aquatic moths, dragonfly nymphs, damselfly nymphs), Arachnida (water mites), Crustacea (water fleas, copepods, seed shrimps, scuds), Oligochaeta (aquatic earthworms), Hirudinea (leeches), Nematoda (roundworms), Gastropoda (snails), Pelecypoda (clams), Turbellaria (planarians) and Hydrozoa (hydras). These are typical fauna generally found in shallow fairly productive lakes in Alberta (Mitchell and Prepas 1990). In comparison nearly 200 similar types of bottom dwelling and vegetation inhabiting organisms were observed in studies conducted between 1972 and 1975 in Wabamun Lake (Rasmussen 1979).

The taxa were grouped into seven groups for analysis including Ephemeroptera/ Trichoptera (E/T), Chironomidae, 'other Arthropoda', Crustacea, Oligochaeta, Nematoda and 'other groups' based on numbers (Table 4). The summary tables of basic computations are presented in Appendix E. The variables of total standing crop and standing crop of these taxonomic groups were log-transformed for statistical analyses (Appendix E). The variables of total taxa and the number of taxa for the seven groups, biomass and feeding groups were not transformed (Appendix E). The ANOVA compared the discharge and background areas of the lake.

The mean total number of taxa in the Ash Lagoon was 19 and increased in the discharge canal to 30 (Figure 2). At Wabamun Lake sites, the mean total number of taxa was higher ranging between 30 and 51 (Figure 2). There was no significant difference in the mean total number of taxa between the discharge and background areas ($p > 0.05$) (Table 5).

In the Ash Lagoon the dominant taxa consisted of Chironomidae and Crustacea taxa, while in the discharge canal the taxa consisted mainly of Chironomidae, 'other Arthropoda', 'other groups' and Crustacea taxa (Figure 2). In the lake, the dominant taxa consisted of Chironomidae, Crustacea and other group taxa (Figure 2).

The mean number of ET taxa in the Ash Lagoon was 1 and increased in the discharge canal to 3. At Wabamun Lake sites, the mean number of ET taxa ranged between 1 and 5. There was no significant difference in the mean number of ET taxa between the discharge and background areas ($p > 0.05$) (Table 5).

The mean number of Chironomidae taxa in the Ash Lagoon and the discharge canal was 7. At Wabamun Lake sites, the mean number of Chironomidae taxa was higher ranging between 9 and 18. There was no significant difference in the mean number of Chironomidae taxa between the discharge and background areas ($p > 0.05$) (Table 5).

Table 4. Taxonomic groups of benthic invertebrates identified and assessed from Wabamun Lake, November 2002.

Taxonomic Group	Common Name	Taxonomic Group Assessed
Ephemeroptera	mayfly nymphs	ET
Trichoptera	caddisfly larvae	ET
Diptera – Chironomidae	midge larvae	Chironomidae
Diptera – Ceratopogonidae	biting midge larvae	'other Arthropoda'
Diptera – Chaoboridae	phantom midge larvae	'other Athropoda'
Diptera – Empididae	dance fly larvae	'other Arthropoda'
Diptera – Simuliidae	black fly larvae	'other Arthropoda'
Diptera – Tabanidae	deer fly larvae	'other Arthropoda'
Diptera – Tipulidae	crane fly larvae	'other Arthropoda'
Coleoptera – Haliplidae	predacious water beetles	'other Arthropoda'
Hemiptera – Corixidae	water boatmen	'other Arthropoda'
Lepidoptera	aquatic moths	'other Arthropoda'
Odonata – Aeshnidae	dragonfly nymph	'other Arthropoda'
Odonata – Coenagrionidae	damselfly nymph	'other Arthropoda'
Hydracarina	water mites	'other Arthropoda'
Cladocera	water fleas	Crustacea
Copepoda	copepods	Crustacea
Ostracoda	seed shrimps	Crustacea
Amphipoda	scuds	Crustacea
Oligochaeta	aquatic worms	Oligochaeta
Nematoda	round worms	Nematoda
Hirudinea	leeches	'other group'
Gastropoda	snails	'other group'
Pelecypoda	clams	'other group'
Turbellaria – Tricladida	planarians	'other group'
Hydrozoa	hydras	'other group'
Tardigrada	water bears	'other group'

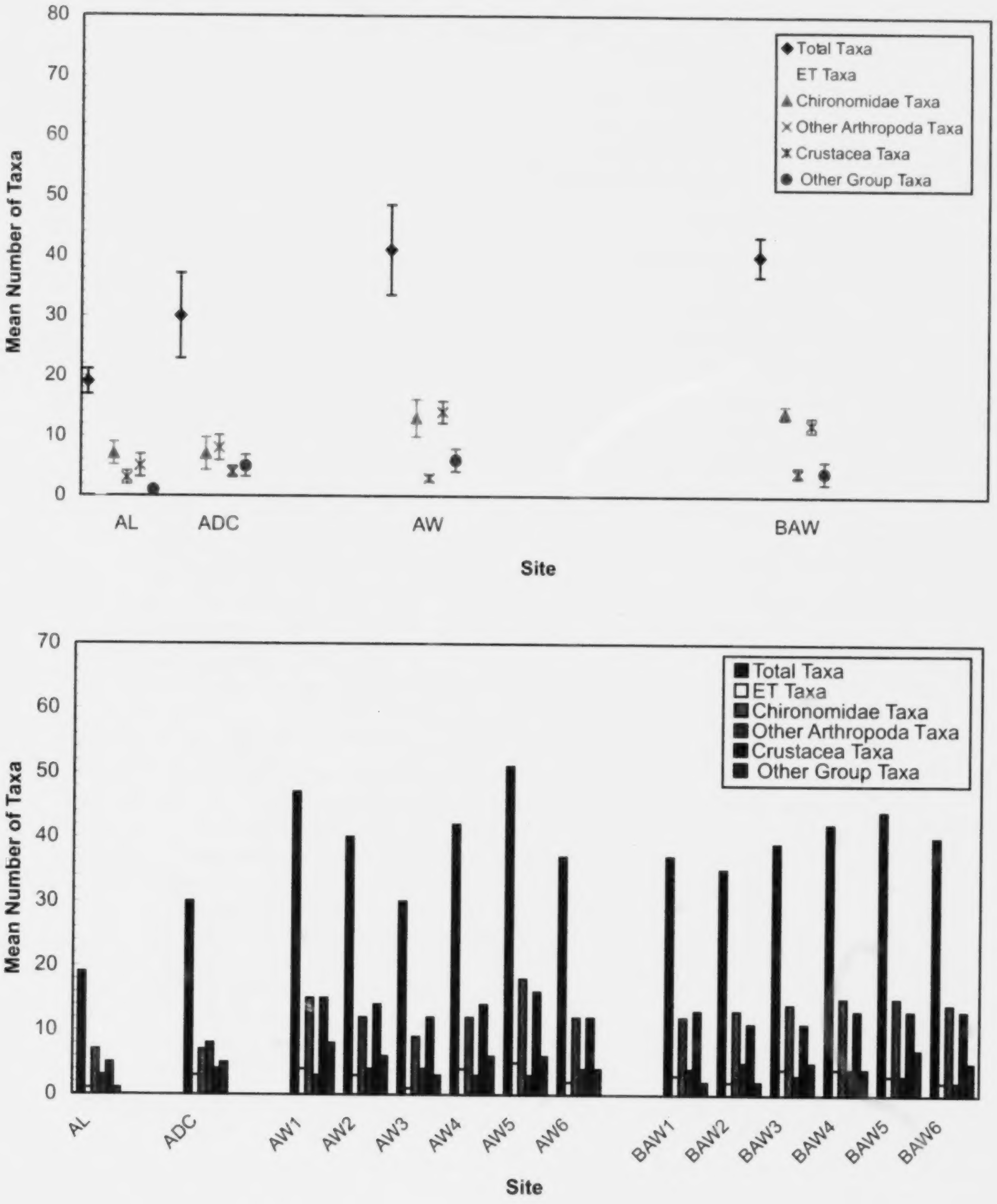


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Figure No.

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Mean Numbers of Taxa for the Ash Lagoon Area

Table 5. Results of ANOVA for benthic variables of taxa and standing crop for the Ash Lagoon area, November 2002.

Variable	ANOVA (p value)	Significant Difference Between Areas
Taxa		
Total Number of Taxa	0.6253	-
Number of ET Taxa	0.8174	-
Number of Chironomidae Taxa	0.5514	-
Number of 'other Arthropoda' Taxa	-	-
Number of Crustacea Taxa	0.0828	-
Number of Oligochaeta Taxa	0.2897	-
Number of 'other group' Taxa	0.2410	-
Standing Crop		
Total Standing Crop (log)	0.3086	-
Standing Crop of ET (log)	0.3669	-
Standing Crop of Chironomidae (log)	0.0001*	Discharge > Background
Standing Crop of 'other Arthropoda' (log)	0.2113	-
Standing Crop of Crustacea (log)	0.6524	-
Standing Crop of Oligochaeta (log)	0.0211*	Discharge > Background
Standing Crop of Nematoda (log)	0.0007*	Discharge > Background
Standing Crop of 'other group' (log)	0.0743	-

* These probabilities were significant ($p < 0.05$) (i.e., means were not the same).

The mean number of 'other Arthropoda' taxa in the Ash Lagoon was 3 and increased in the discharge canal to 8. At Wabamun Lake sites, the mean number of 'other Arthropoda' taxa ranged between 2 and 5. The sum-of-squares between groups was 0 and therefore, the ANOVA could not be calculated for 'other Arthropoda' taxa.

The mean number of Crustacea taxa in the Ash Lagoon was 5 and in the discharge canal 4. At Wabamun Lake sites, the mean number of Crustacea taxa was higher ranging between 11 and 16. There was no significant difference in the mean number of Crustacea taxa between the discharge and background areas ($p > 0.05$) (Table 5). It is recognized that Ekman grabs are not suitable for the quantitative sampling of planktonic crustaceans. However, qualitative comparisons were needed to compare relative numbers and distribution of planktonic and benthic species at discharge and background sites. In particular, since sediment toxicity testing carried out by HydroQual (2003) revealed that some crustaceans (*Ceriodaphnia*) were particularly sensitive. Comparisons of the Crustacea taxa and numbers of organisms present in the Ash Lagoon area are provided in Table 6. There are differences in mean standing crop of species with benthic habits (e.g., *Ilyocryptus sordidus*, *Ceriodaphnia quadrangular*, Harpacticoida, Ostracoda and Amphipoda), but sites in the discharge area (AW) and in the background area (BAW) had a comparable diversity and density of crustaceans.

Table 6. Mean standing crop (number/m^2) of Crustacea taxa and standard deviation for the Ash Lagoon area, November 2002.

Crustacea Taxa	Mean Standing Crop ± Standard Deviation*			
	Site AL	Site ADC	AW	BAW
Cladocera				
Bosmina longirostris	0	0	5,290 ± 5,024	8,215 ± 4,609
Acroperus harpae	0	0	953 ± 1,940	100 ± 246
Alona affinis	0	0	38,530 ± 33,643	47,146 ± 38,645
Alona rectangula	0	0	258 ± 471	29 ± 70
Chydorus sphaericus gp.	138	2,409	29,254 ± 21,607	97,075 ± 90,302
Eurycercus lamellatus gp.	0	0	508 ± 825	77 ± 186
Leydigia leydigi	0	0	11,308 ± 7,431	6,040 ± 4,077
Pleuroxus denticulatus	0	0	87 ± 212	0
Ceriodaphnia quadrangula	0	0	272 ± 409	29 ± 70
Daphnia galeata mendotae	0	0	7,545 ± 7,858	10,057 ± 7,603
Daphnia pulex gp.	310	0	0	0
Daphnia retrocurva	0	0	172 ± 154	703 ± 610
Simocephalus vetulus	0	0	72 ± 176	0
Ilyocryptus sordidus	0	0	516 ± 618	918 ± 1,269
Macrothrix laticornis	43	0	29 ± 70	1,204 ± 1,983
Diaphanosoma birjei	0	0	29 ± 70	72 ± 176
Copepoda				
Calanoida	340	1,204	10,228 ± 6,328	2,870 ± 1,813
Cyclopoida	15,127	9,634	35,782 ± 15,495	27,285 ± 15,289
Harpacticoida	0	0	2,459 ± 1,745	8,188 ± 6,461
Ostracoda				
Candona sp.	0	1204	3,001 ± 803	3,082 ± 1,270
Cyclocypris sp.	34	0	4,958 ± 3,178	158 ± 207
Cypridopsis sp.	34	0	1,277 ± 1,407	158 ± 207
Darwinula stevensoni	0	0	602 ± 1,107	14 ± 35
Limnocythere sp.	181	21505	839 ± 625	1,434 ± 1,392
Amphipoda				
Gammarus lacustris	0	4	13 ± 14	6 ± 14
Hyalella azteca	1729	8546	8,857 ± 4,534	3,062 ± 2,181

* Standard deviation was calculated for the six sites sampled in the discharge and background areas.

The mean number of Oligochaeta taxa (Family) in the Ash Lagoon was 1 and in the discharge canal 2. At Wabamun Lake sites, the mean number of Oligochaeta taxa ranged between 1 and 2. There was no significant difference in the mean number of Oligochaeta taxa between the discharge and background areas ($p > 0.05$) (Table 5).

The mean number of taxa belonging to 'other groups' in the Ash Lagoon was 1 and increased in the discharge canal to 5. At Wabamun Lake sites, the mean number of 'other groups' taxa ranged between 2 and 8. There was no significant difference in the mean number of 'other groups' taxa between the discharge and background areas ($p > 0.05$) (Table 5).

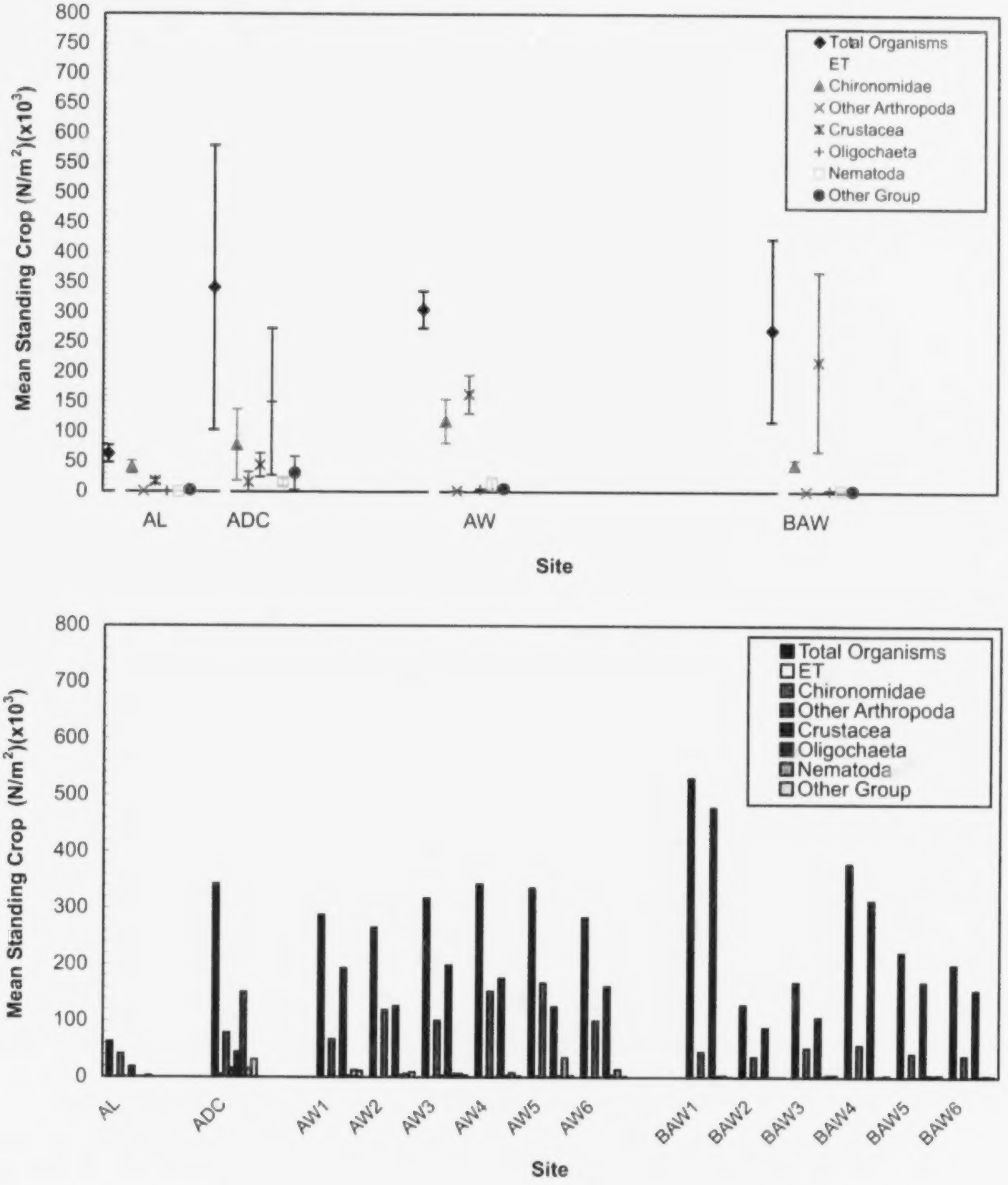
The mean total standing crop in the Ash Lagoon was 62,723 organisms/m^2 and increased in the discharge canal to 341,811 organisms/m^2 (Figure 3). At Wabamun Lake sites, the mean total standing crop ranged between 128,176 and 529,708 organisms/m^2 (Figure 3). There was no significant difference in the mean total standing crop between the discharge and background areas ($p > 0.05$) (Table 5).

In the Ash Lagoon the dominant groups in terms of standing crop consisted of 65% Chironomidae and 29% Crustacea, while in the discharge canal the dominant groups consisted of 44% Oligochaeta, 23% Chironomidae, 13% Crustacea and 9% 'other groups'. In the lake, the dominant groups consisted of 53% Crustacea, 39% Chironomidae and 5% Nematoda in the discharge area and 80% Crustacea and 17% Chironomidae in the background area.

In studies conducted between 1972 and 1975 in Wabamun Lake (Rasmussen 1979), Chironomidae was the dominant benthic invertebrate fauna, with the most organic and nutrient enriched sediments dominated by *Chironomus* sp. and the least organic sediments by species of *Polypedilum*, *Cladotanytarsus* and *Tanytarsus*. The standing crop of Chironomidae was greatest in the areas affected by the thermal discharge, while tubificids (Oligochaeta) were also dominant in the sediment and snails (Gastropoda) were dominant on vegetation. Planktonic Crustacea were not assessed as part of these benthic studies.

The mean standing crop of ET in the Ash Lagoon was low at 65 organisms/m^2 and increased in the discharge canal to 5,140 organisms/m^2. At Wabamun Lake sites, the mean standing crop of ET was lower than in the canal ranging between 138 and 1,639 organisms/m^2. There was no significant difference in the mean standing crop of ET taxa between the discharge and background areas ($p > 0.05$) (Table 5). The higher standing crop of ET in the discharge canal was likely due to the habitat preferences of ET for flowing habitat. The discharge canal which flows from the Ash Lagoon to the lake had slow flowing water in the sampling area.

The mean standing crop of Chironomidae in the Ash Lagoon was 41,045 organisms/m^2 and increased in the discharge canal to 78,546 organisms/m^2. At



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Mean Standing Crop for the Ash Lagoon Area

Wabamun Lake sites, the mean standing crop of Chironomidae ranged between 35,695 and 166,559 organisms/m^2. There was a significantly higher mean standing crop of Chironomidae in the discharge area (area mean 117,571 organisms/m^2) than in the background area (area mean 44,915 organisms/m^2) ($p < 0.05$) (Table 5).

The mean standing crop of 'other Arthropoda' in the Ash Lagoon was 404 organisms/m^2 and increased in the discharge canal to 15,862 organisms/m^2. At Wabamun Lake sites, the mean standing crop of 'other Arthropoda' ranged between 288 and 3,222 organisms/m^2. There was no significant difference in the mean standing crop of 'other Arthropoda' between the discharge and background areas ($p > 0.05$) (Table 5).

The mean standing crop of Crustacea in the Ash Lagoon was 17,935 organisms/m^2 and increased in the discharge canal to 44,508 organisms/m^2. At Wabamun Lake sites, the mean standing crop of Crustacea ranged between 88,305 and 477,733 organisms/m^2. There was no significant difference in the mean standing crop of Crustacea between the discharge and background areas ($p > 0.05$) (Tables 5 and 6).

The mean standing crop of Oligochaeta in the Ash Lagoon was 391 organisms/m^2 and increased in the discharge canal to 150,572 organisms/m^2. At Wabamun Lake sites, the mean standing crop of Oligochaeta ranged between 1,049 and 5,566 organisms/m^2. There was a significantly higher mean standing crop of Oligochaeta in the discharge area (area mean 3,718 organisms/m^2) than in the background area (area mean 2,185 organisms/m^2) ($p < 0.05$) (Table 5).

The mean standing crop of Nematoda in the Ash Lagoon was 211 organisms/m^2 and increased in the discharge canal to 15,875 organisms/m^2. At Wabamun Lake sites, the mean standing crop of Nematoda ranged between 869 and 34,796 organisms/m^2. There was a significantly higher mean standing crop of Nematoda in the discharge area (area mean 13,702 organisms/m^2) than in the background area (area mean 2,410 organisms/m^2) ($p < 0.05$) (Table 5).

The mean standing crop of the 'other groups' in the Ash Lagoon was 2,671 organisms/m^2 and increased in the discharge canal to 31,308 organisms/m^2. At Wabamun Lake sites, the mean standing crop of the 'other groups' ranged between 800 and 10,933 organisms/m^2. There was no significant difference in the mean standing crop of the 'other groups' between the discharge and background areas ($p > 0.05$) (Table 5).

In general, the abundance and richness of organisms in the Ash Lagoon was higher than would have been expected on a substrate consisting mainly of a deposition of coal fines. The Ash Lagoon was dominated by Chironomidae and Crustacea. The discharge canal had higher abundance and richness of organisms than the Ash Lagoon. A similar range of abundance and richness of organisms was found in

Wabamun Lake as in the discharge canal. Wabamun Lake was dominated by Crustacea and Chironomidae, while the discharge canal was dominated by Oligochaeta, Chironomidae and Crustacea. In the lake, the abundances of Chironomidae, Oligochaeta and Nematoda were significantly higher in the discharge area than in the background area. Higher numbers of Chironomidae and Oligochaeta are generally associated with increased nutrient enrichment (Hynes 1960).

3.1.6 Benthic Invertebrate Community Analysis

The detrended correspondence analysis (DCA) identifies groups of sites with similar benthic invertebrate community structure. The DCA result is plotted as a two-axis (X and Y) ordination for site scores on a scale of 0 to 100 (ordination units) on each axis. The DCA results for the Wabamun benthic data are provided in Appendix F.

The site ordination indicated three sample clusters (Figure 4). The Ash Lagoon site formed one cluster, the discharge canal site the second cluster and the Wabamun Lake sites a third cluster. A cluster of samples represents those that have similar benthic community assemblages. The degree of faunal homogeneity between samples within a cluster is represented by the closeness of the samples within the cluster. Within the Wabamun Lake sample cluster, the discharge area sites grouped toward the bottom of the cluster and the background area sites grouped toward the top of the cluster. The ordination indicated that there were differences in benthic community structure between the Ash Lagoon, the discharge canal and Wabamun Lake. Smaller differences in benthic community structure occurred between the discharge and background areas in the lake.

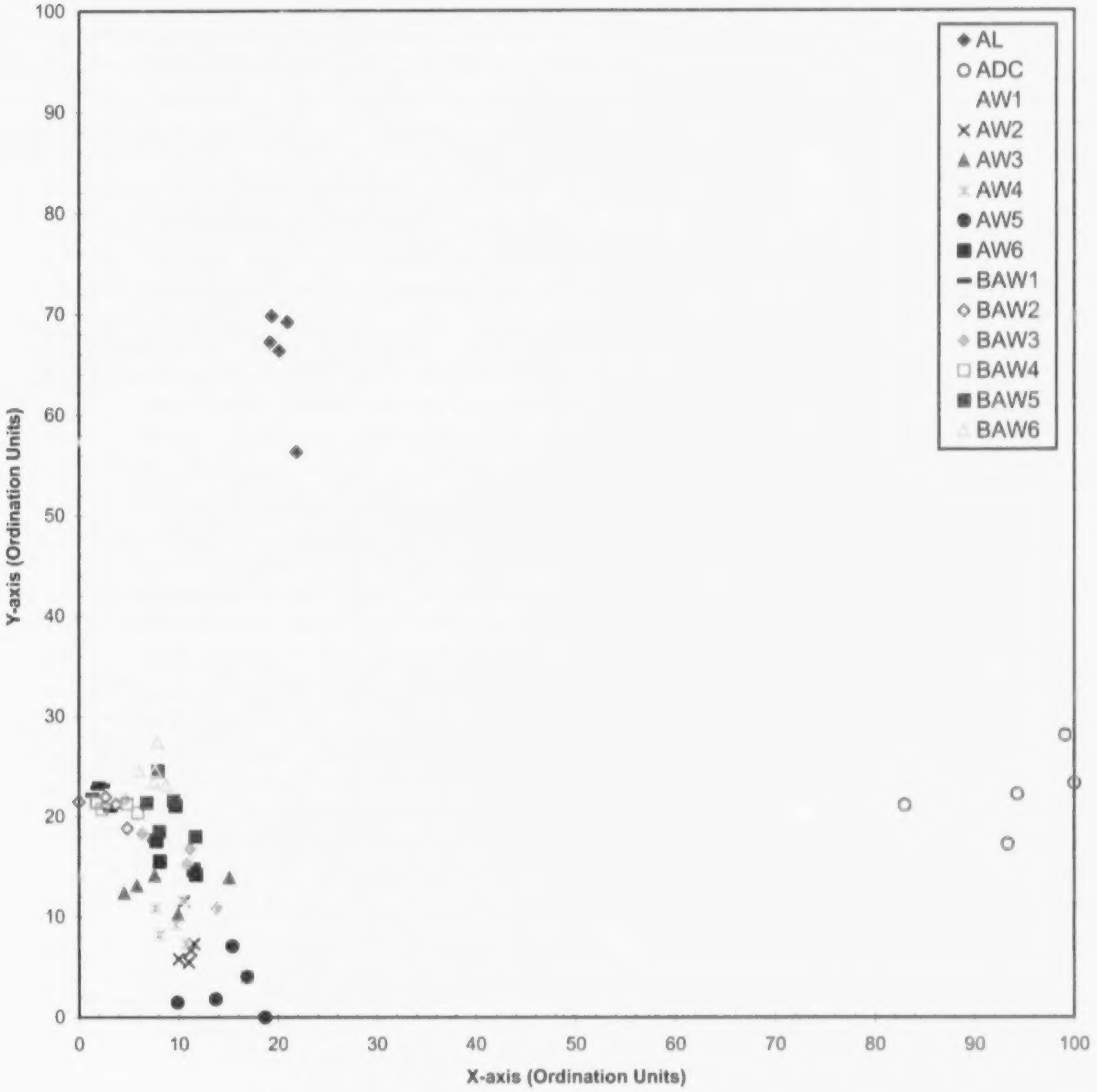
The dominant benthic community structure of each cluster for the Ash Lagoon area consisted of the following taxa (mean percent of total numbers):

Ash Lagoon
Cryptotendipes sp. (44%)
Cyclopoida (24%)
Procladius sp. (15%)
Pisidium sp. (4%)
Tanytarsus sp. (3%)
Hyalella azteca (3%)
Cladotanytarsus sp. (3%)

Discharge Canal
Tubificidae (43%)
Paratendipes sp. (18%)
Pisidium sp. (8%)
Limocythere sp. (6%)
Nematoda (5%)
Simulium sp. (4%)
Cricotopus sp. (3%)
Cyclopoida (3%)
Hyalella azteca (3%)

Discharge Area
Cladotanytarsus sp. (25%)
Alona affinis (13%)
Cyclopoida (12%)

Background Area
Chydorus sphaericus gp. (30%)
Alona affinis (17%)
Cyclopoida (11%)



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Detrended Correspondence Analysis of Sites for the Ash Lagoon Area

Chydorus sphaericus gp. (10%)
Tanytarsus sp. (5%)
Procladius sp. (5%)
Nematoda (4%)
Leydigia leydigi (4%)
Calanoida (4%)
Hyalella azteca (3%)
Daphnia galeata mendotae (3%)

Cladotanytarsus sp. (9%)
Procladius sp. (4%)
Daphnia galeata mendotae (4%)
Harpacticoida (4%)
Tanytarsus sp. (3%)
Bosmina longirostris (3%)

The dominant taxa in the Ash Lagoon consisted of four chironomids, one copepod, one amphipod and one clam. The dominant taxa in the discharge canal consisted of the same copepod, amphipod and clam as in the Ash Lagoon, two different chironomids than in the Ash Lagoon and other dominant taxa including one aquatic worm, one ostracod, roundworms and one fly. In the lake, the dominant taxa in the discharge area consisted of the following taxa: three chironomids, four cladocerans (water fleas), two copepods, roundworms and one amphipod. One copepod and the one amphipod in the discharge area of the lake were the same as in the discharge canal. The three chironomids, three cladocerans and one copepod were the same in the discharge and background areas of the lake. In the background area, there was also one cladoceran and one copepod which were different from the discharge area.

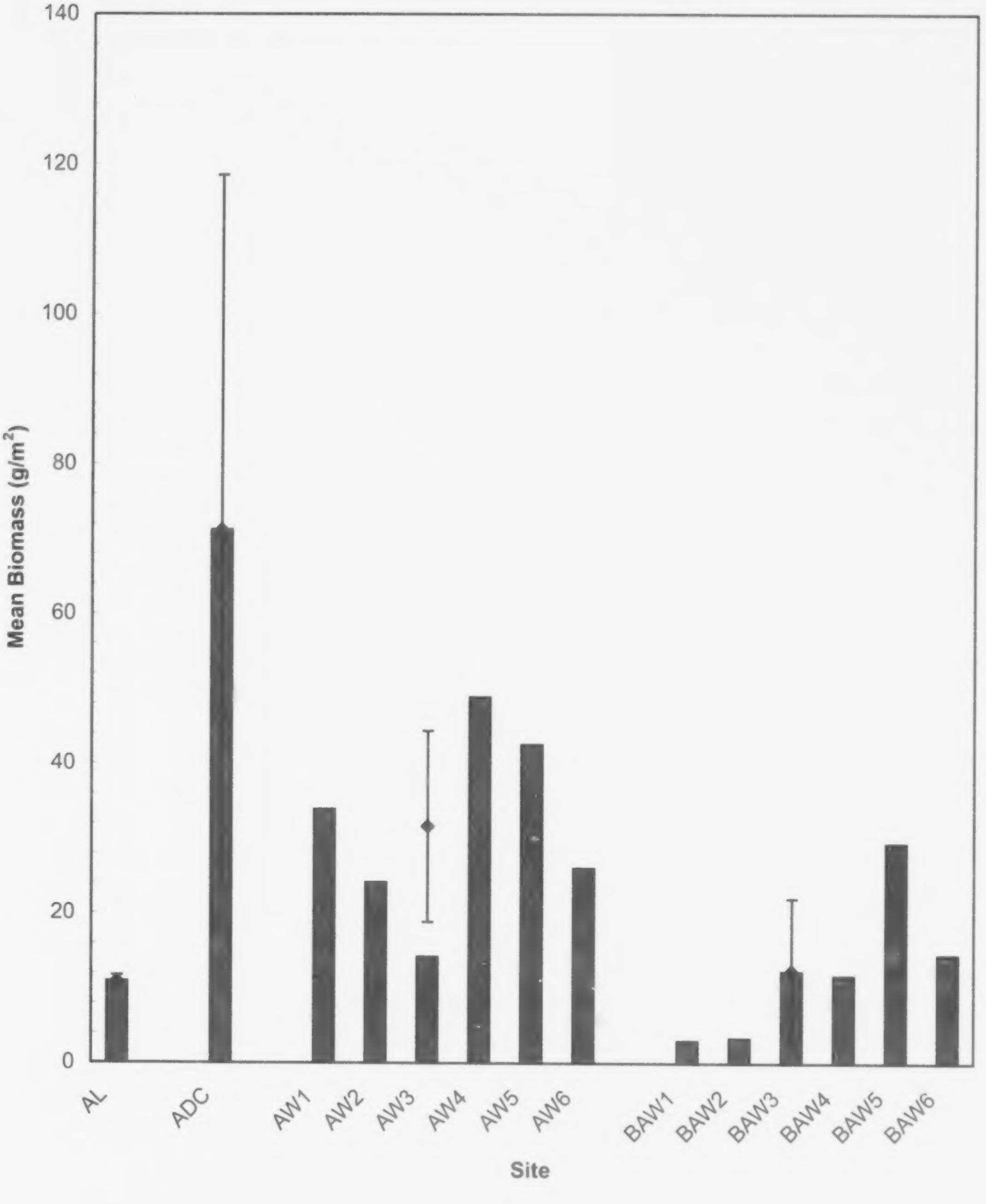
3.1.7 Benthic Invertebrate Biomass

The mean total biomass (wet weight) (g/m^2) of benthic invertebrates for each site and each area is shown in Figure 5. The data are provided in Appendix G.

The mean total biomass was considerably higher in the discharge canal (71.2 g/m^2) than in the Ash Lagoon (10.9 g/m^2). The mean total biomass in the discharge area of Wabamun Lake was 31.6 g/m^2 (ranging between 14.2 and 48.8 g/m^2), while in the background area it was lower at 12.3 g/m^2 (ranging between 3.0 and 29.3 g/m^2). There was a significantly higher total biomass in the discharge area than in the background area ($p < 0.05$). A higher biomass can occur as a result of higher numbers of organisms or differences in biomass can also be related to the size of the organisms, since different taxonomic groups can consist of different sizes of organisms.

3.1.8 Benthic Invertebrate Trophic Analysis

A trophic (feeding group) analysis was used to determine if there were differences in trophic structure between areas. The availability of food is a factor which can control the occurrence and abundance of benthic invertebrate species (Hynes 1972). The percent of each feeding group for each site and area is provided in Figure 6 and Appendix H.



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⌶ Area Average and Standard Deviation

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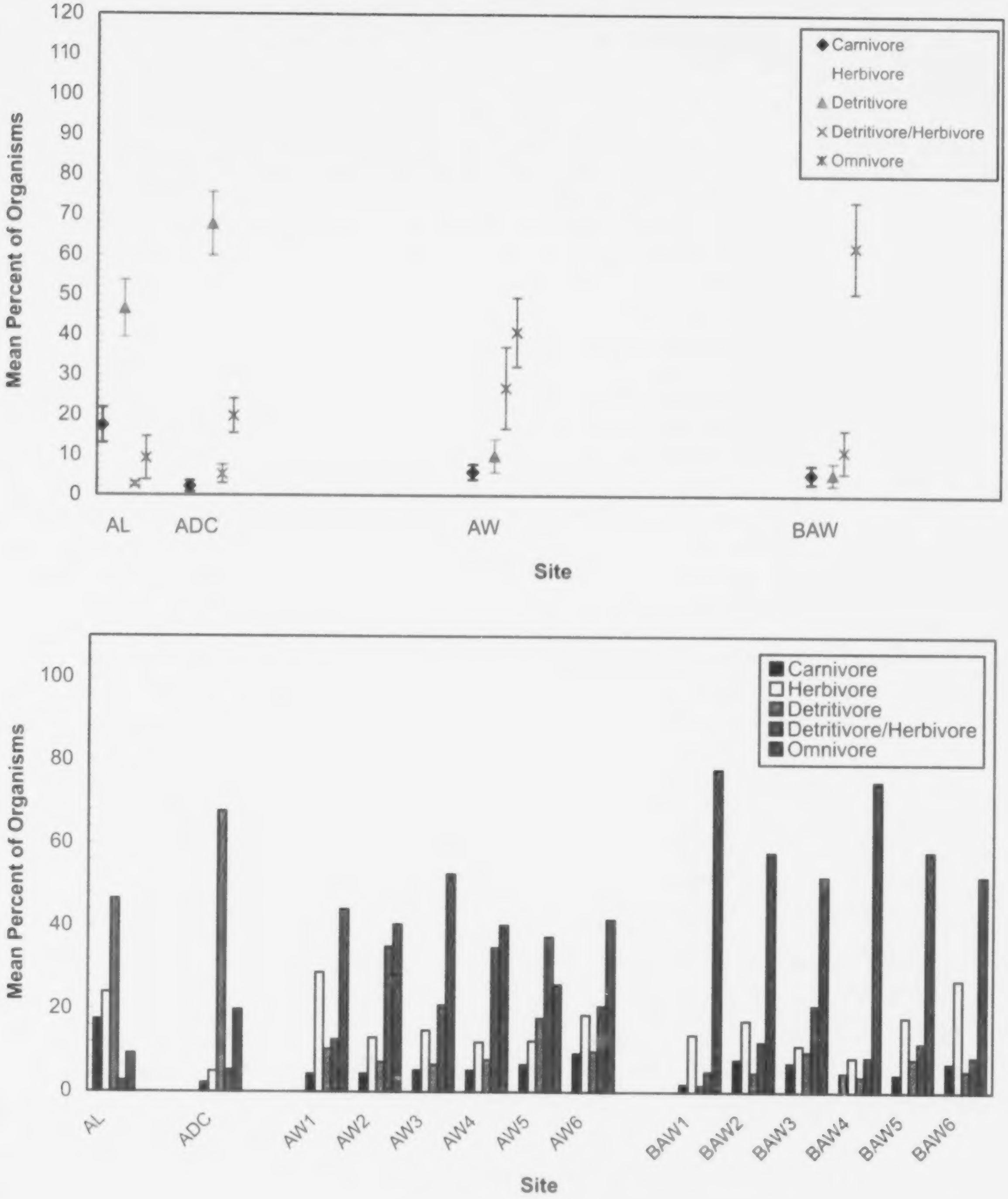
Biomass of Sites for the Ash Lagoon Area



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Percent Composition of Feeding Groups for the Ash Lagoon Area

The trophic analysis showed that the Ash Lagoon was dominated by detritivores (47%), herbivores (24%), carnivores (17%) and omnivores (9%), while the discharge canal was dominated by detritivores (68%), omnivores (20%), detritivore/herbivores (5%) and herbivores (5%) (Figure 6). In the lake, both the discharge and background areas were dominated by omnivores (area means 41 and 62%, respectively), detritivore/herbivores (area means 27 and 11%, respectively), herbivores (area means 17 and 16%, respectively) and detritivores (area means 10 and 6%, respectively) (Figure 6). 'Other groups' were less than 6%.

The percentage of detritivore/herbivores was significantly higher in the discharge than background area ($p < 0.05$), while the percentage of omnivores was significantly higher in the background than discharge area ($p < 0.05$) (Table 7). The higher percentage of detritivore/herbivores in the discharge area was a result of the higher numbers of several chironomids, while the higher percentage of omnivores in the background area was the result of the higher numbers of crustaceans. The percentage of carnivores, herbivores and detritivores were not significantly different between the discharge and background areas ($p > 0.05$) (Table 7).

Table 7. Results of ANOVA for benthic variables of feeding groups for the Ash Lagoon area, November 2002.

Variable*	ANOVA (p value)	Significant Difference Between Areas
Percent Carnivores	0.7162	-
Percent Herbivores	0.8762	-
Percent Detritivores	0.0523	-
Percent Detritivore/Herbivores	0.0072*	Discharge > Background
Percent Omnivores	0.0045*	Discharge < Background

* These probabilities were significant ($p < 0.05$) (i.e., means were not the same).

3.2 WABAMUN LAKE WATER TREATMENT PLANT

3.2.1 Site Locations

Thirteen sites were located in the Wabamun Lake Water Treatment Plant area (Figure 1) (Table 2) as follows:

- one site in the water treatment discharge canal (about mid-point in the canal) (Site WDC);
- six sites in Wabamun Lake in the area of the water treatment discharge, at about 90 m out from the edge of the discharge canal, with sites located from east to west over a distance of 560 m (Sites WW1, WW2, WW3, WW4, WW5 and WW6); and

- six sites in Wabamun Lake in the background area, in line with the water treatment discharge sites (i.e., about the same distance from shore), with sites located from east to west over a distance of 140 m (BWW1, BWW2, BWW3, BWW4, BWW5 and BWW6).

3.2.2 Physical Variables

The physical variables of water depth and substrate composition were kept as similar as field conditions allowed between sampling sites and between areas (Appendix B).

The water depth at which samples were collected in the Wabamun Lake Water Treatment Plant canal was at 1.7 m. The water depth in Wabamun Lake in the area of the Wabamun Lake Water Treatment Plant discharge and the background area at which samples were collected ranged between 2.6 and 3.3 m.

Substrate composition in the Wabamun Lake Water Treatment Plant discharge canal consisted mainly of silt and organics with a slight hydrocarbon-type odour. Macrophyte growth was present in the canal with heavier growth closer to the outfall into the canal. Benthic invertebrate samples were collected about mid-point in the canal where macrophyte growth was less. In Wabamun Lake in the Wabamun Lake Water Treatment Plant discharge area the substrate consisted of fine sand, silt, organics, flakes of coal and small amounts of macrophytes. No specific odour was noticed from the samples. The substrate at two sites in the background area consisted of fine sand, silt, organics, flakes of coal and some macrophytes and the other four sites consisted of fine sand, silt and organics with an organic-type odour.

3.2.3 Chemical Variables

Field water quality results for the Wabamun Lake Water Treatment Plant area are provided in Table 3. The pH of the Wabamun Lake Water Treatment Plant discharge canal was 8.3, while the pH of Wabamun Lake was slightly higher ranging between 8.7 and 8.9 in the discharge and background areas. These values were within the CWQG (6.5 to 9.0), but the pH values of the lake were just above the SWQGA (6.5 to 8.5).

In the Wabamun Lake Water Treatment Plant discharge canal conductivity was 631 µmhos/cm. Conductivity was lower in Wabamun Lake in the discharge and background areas ranging from 512 to 527 µmhos/cm. The conductivity at Site WW2 (527 µmhos/cm) in front of the discharge canal opening into the lake was slightly higher than at the other discharge area sites (512 – 518 µmhos/cm). This indicated that there was some influence of the Wabamun Lake Water Treatment Plant discharge on lake conductivity.

Dissolved oxygen in the Wabamun Lake Water Treatment Plant discharge canal was 11.5 ppm (saturation level of 99%). In Wabamun Lake, dissolved oxygen was similar ranging between 11.8 and 12.4 ppm, representing saturation levels of 90 to 95%. These dissolved oxygen values were well above the SWQGA (minimum of 5 ppm) and the CWQG minimum (varying from 5.5 to 9.5 ppm). Water temperature ranged from 0.5 to 0.8°C at sites in the lake, while the discharge canal was warmer at 5.2°C.

3.2.4 Benthic Invertebrate Sample Processing

The level of sorting efficiency exceeded 90% as required by Environment Canada for benthic invertebrate community surveys (Environment Canada 1998) (see Section 3.1.4) (Appendix C).

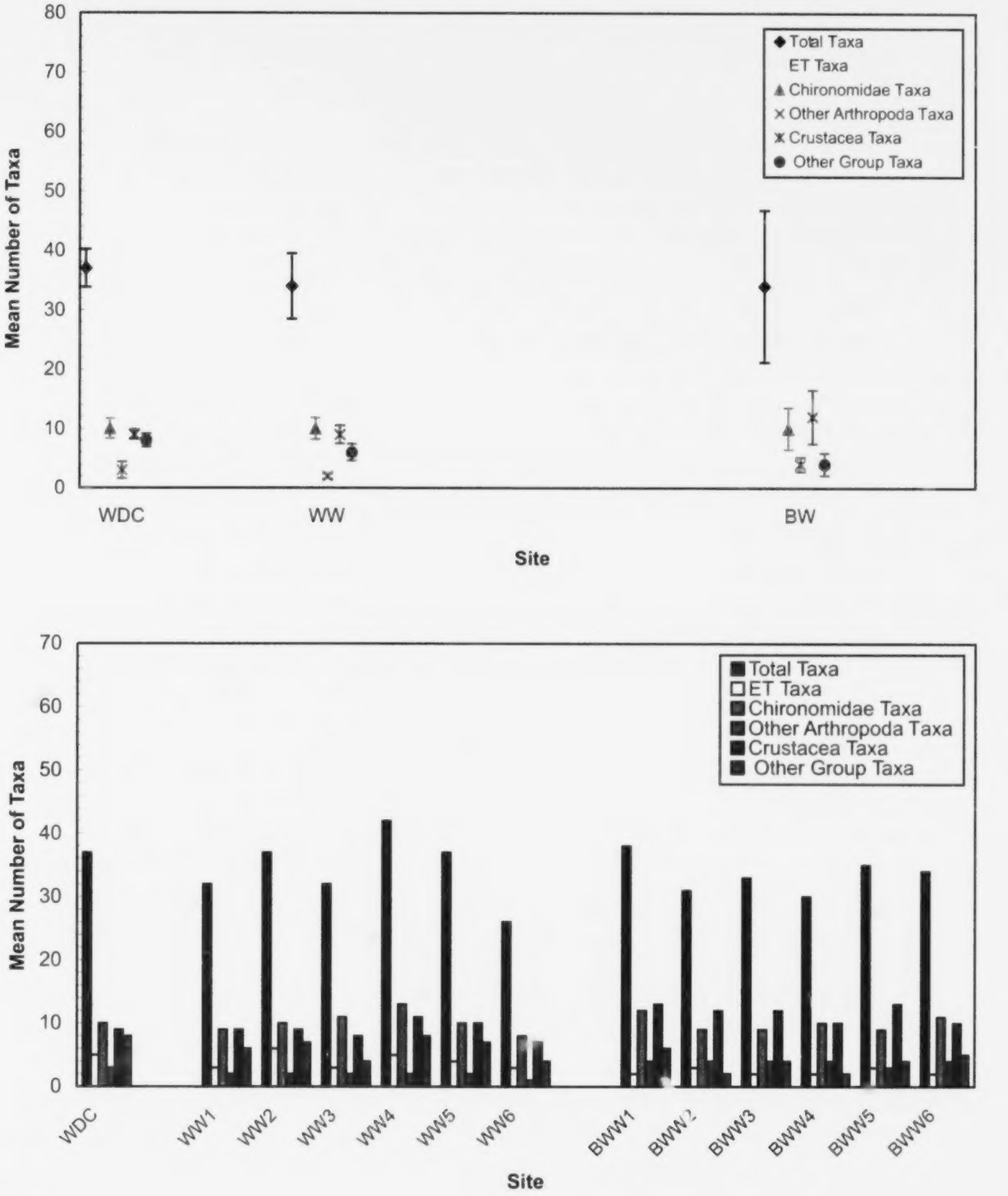
The benthic data showing the number of organisms per sample (in 0.046 m^2) for each identified taxon in the Wabamun Lake Water Treatment Plant area are presented in Appendix D. These data were weighted for subsampled taxa by the appropriate factor.

3.2.5 Benthic Invertebrate Basic Computations

Of the 128 taxa of benthic invertebrates identified (most to the generic level) from the Wabamun Lake samples (species list provided in Appendix D), 101 taxa were found in the Wabamun Lake Water Treatment Plant area. The fauna consisted of various Insecta (mayfly nymphs, caddisfly larvae, fly larvae, midge larvae, beetles, water boatmen, aquatic moths, dragonfly nymphs, damselfly nymphs), Arachnida (water mites), Crustacea (water fleas, copepods, seed shrimps, scuds), Oligochaeta (aquatic earthworms), Hirudinea (leeches), Nematoda (roundworms), Gastropoda (snails), Pelecypoda (clams), Turbellaria (planarians and microflatworms), Hydrozoa (hydras) and Tardigrada (water bears). The taxa were grouped into seven groups for analysis including Ephemeroptera/Trichoptera (E/T), Chironomidae, and 'other Arthropoda', Crustacea, Oligochaeta, Nematoda and 'other groups' based on numbers (Table 4).

The mean total number of taxa in the Wabamun Lake Water Treatment Plant discharge canal was 37 (Figure 7). At Wabamun Lake sites, the mean total number of taxa was similar ranging between 26 and 42 (Figure 7). There was no significant difference in the mean total number of taxa between the discharge and background areas ($p > 0.05$) (Table 8).

In the Wabamun Lake Water Treatment Plant discharge canal the dominant taxa consisted of Chironomidae, Crustacea, 'other groups' and Ephemeroptera/Trichoptera (Figure 7). In the lake, the dominant taxa consisted of Chironomidae, Crustacea and 'other groups' (Figure 7).



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Mean Numbers of Taxa for the Water Treatment Area

Table 8. Results of ANOVA for benthic variables of taxa and standing crop for the Wabamun Lake Water Treatment Plant Area, November 2002.

Variable	ANOVA (p value)	Significant Difference Between Areas
Taxa		
Total Number of Taxa	0.7504	-
Number of ET Taxa	0.0136*	Discharge > Background
Number of Chironomidae Taxa	0.8523	
Number of 'other Arthropoda' Taxa	0.0000*	Discharge < Background
Number of Crustacea Taxa	0.0077*	Discharge < Background
Number of Oligochaeta Taxa	0.0493*	Discharge > Background
Number of 'other group' Taxa	0.0449*	Discharge > Background
Standing Crop		
Total Standing Crop (log)	0.8664	-
Standing Crop of ET (log)	0.2550	-
Standing Crop of Chironomidae (log)	0.0000*	Discharge < Background
Standing Crop of 'other Arthropoda' (log)	0.1339	-
Standing Crop of Crustacea (log)	0.4760	-
Standing Crop of Oligochaeta (log)	0.0002*	Discharge > Background
Standing Crop of Nematoda (log)	0.1049	-
Standing Crop of 'other group' (log)	0.0519	-

The mean number of ET taxa in the Wabamun Lake Water Treatment Plant discharge canal was 5. At Wabamun Lake sites, the mean number of ET taxa ranged between 2 and 6. There was a significantly higher mean number of ET taxa in the discharge area (area mean 4) than in the background area (area mean 2) ($p < 0.05$) (Table 8).

The mean number of Chironomidae taxa in the Wabamun Lake Water Treatment Plant discharge canal was 10. At In Wabamun Lake sites, the mean number of Chironomidae taxa ranged between 8 and 13. There was no significant difference in the mean number of Chironomidae taxa between the discharge and background areas ($p > 0.05$) (Table 8).

The mean number of 'other Arthropoda' taxa in the Wabamun Lake Water Treatment Plant discharge canal was 3. At Wabamun Lake sites, the mean number of 'other Arthropoda' taxa ranged between 1 and 4. There was a significantly lower mean number of 'other Arthropoda' taxa in the discharge area (area mean 2) than in the background area (area mean 4) ($p < 0.05$) (Table 8). There were several Hydracarina (water mite) species present in the background area that were not present in the discharge area.

The mean number of Crustacea taxa in the Wabamun Lake Water Treatment Plant discharge canal was 9. At Wabamun Lake sites, the mean number of Crustacea taxa ranged between 7 and 13. There was a significantly lower mean number of Crustacea taxa in the discharge area (area mean 9) than in the background area (area mean 12) ($p < 0.05$) (Table 8). Comparisons of the Crustacea taxa and numbers of organisms present in the Wabamun Lake Water Treatment Plant area are provided in Table 9.

The mean number of Oligochaeta taxa (Families) in the Wabamun Lake Water Treatment Plant discharge canal was 2. At Wabamun Lake sites, the mean number of Oligochaeta taxa ranged between 1 and 2. Although the actual difference in numbers was small (difference of 1 taxa), ANOVA indicated that there was a significantly higher mean number of Oligochaeta taxa in the discharge area (area mean 2) than in the background area (area mean 1) ($p < 0.05$) (Table 8).

The mean number of other group taxa in the Wabamun Lake Water Treatment Plant discharge canal was 8. At Wabamun Lake sites, the mean number of other group taxa ranged between 2 and 8. There was a significantly higher mean number of other group taxa in the discharge area (area mean 6) than in the background area (area mean 4) ($p < 0.05$) (Table 8). However, the actual difference in numbers of taxa was small (2 taxa).

The mean total standing crop in the Wabamun Lake Water Treatment Plant discharge canal was 197,028 organisms/m^2 (Figure 8). At Wabamun Lake sites, the mean total standing crop ranged between 104,065 and 497,544 organisms/m^2 (Figure 8). There was no significant difference in the mean total standing crop between the discharge and background areas ($p > 0.05$) (Table 8).

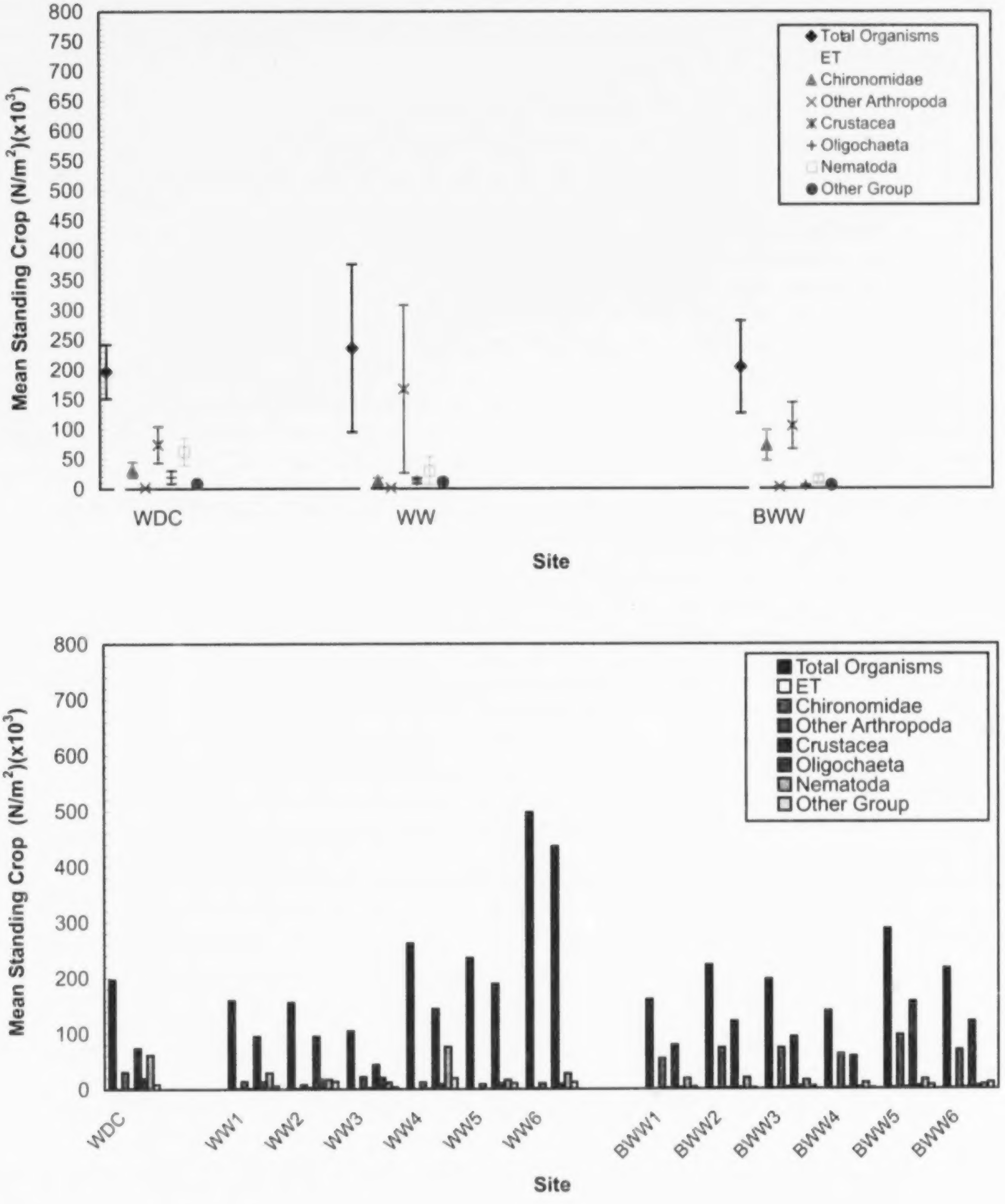
In the Wabamun Lake Water Treatment Plant discharge canal the dominant groups in terms of standing crop consisted of 37% Crustacea, 31% Nematoda, 16% Chironomidae and 10% Oligochaeta. In the lake, the dominant groups consisted of 71% Crustacea, 13% Nematoda, 6% Oligochaeta, 5% Chironomidae and 5% 'other groups' in the discharge area and 51% Crustacea, 35% Chironomidae and 7% Nematoda in the background area.

The mean standing crop of ET in the Wabamun Lake Water Treatment Plant discharge canal was 809 organisms/m^2. At Wabamun Lake sites, the mean standing crop of ET ranged between 172 and 1,837 organisms/m^2. There was no significant difference in the mean standing crop of ET taxa between the discharge and background areas ($p > 0.05$) (Table 8).

Table 9. Mean standing crop of Crustacea taxa and standard deviation for the Wabamun Lake Water Treatment Plant area, November 2002.

Crustacea Taxa	Mean Standing Crop ± Standard Deviation*		
	Site WDC	WW	BWW
Cladocera			
Bosmina longirostris	0	2,609 ± 1,712	3,513 ± 3,129
Acroperus harpae	1,505	115 ± 140	0
Alona affinis	645	975 ± 839	6,395 ± 2,701
Alona rectangula	0	215 ± 229	43 ± 72
Chydorus sphaericus gp.	2,366	122,201 ± 136,288	34,581 ± 22,005
Eurycercus lamellatus gp.	1,092	0	0
Leydigia leydigi	860	172 ± 109	1,376 ± 519
Pleuroxus denticulatus	215	0	0
Ceriodaphnia quadrangula	0	0	29 ± 70
Daphnia galeata mendotae	0	1,720 ± 2,262	2,136 ± 1,924
Daphnia pulex gp.	0	0	0
Daphnia retrocurva	0	0	0
Simocephalus vetulus	0	0	0
Ilyocryptus sordidus	0	330 ± 138	889 ± 529
Macrothrix laticornis	0	287 ± 259	115 ± 130
Diaphanosoma birjei	0	0	0
Copepoda			
Calanoida	0	2,423 ± 3,287	4,675 ± 4,253
Cyclopoida	14,409	21,090 ± 7,140	20,616 ± 8,815
Harpacticoida	10,108	4,036 ± 1,069	18,093 ± 6,373
Ostracoda			
Candona sp.	3,011	652 ± 373	5,276 ± 1,455
Cyclocypris sp.	26,886	100 ± 176	43 ± 105
Cypridopsis sp.	7,742	57 ± 89	57 ± 89
Darwinula stevensoni	0	100 ± 158	2,137 ± 710
Limnocythere sp.	860	172 ± 267	3,254 ± 2,262
Amphipoda			
Gammarus lacustris	4	106 ± 2	2 ± 5
Hyalella azteca	3,888	9,590 ± 4,803	1,680 ± 1,352

* Standard deviation was calculated for the six sites sampled in the discharge and background areas.



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Mean Standing Crop for the Water Treatment Area

The mean standing crop of Chironomidae in the Wabamun Lake Water Treatment Plant discharge canal was 31,398 organisms/m^2. At Wabamun Lake sites, the mean standing crop of Chironomidae ranged between 8,125 and 96,895 organisms/m^2. There was a significantly lower mean standing crop of Chironomidae in the discharge area (area mean 12,422 organisms/m^2) than the background area (area mean 71,910 organisms/m^2) ($p < 0.05$) (Table 8).

The mean standing crop of 'other Arthropoda' in the Wabamun Lake Water Treatment Plant discharge canal was 1,712 organisms/m^2. At Wabamun Lake sites, the mean standing crop of 'other Arthropoda' ranged between 69 and 2,994 organisms/m^2. There was no significant difference in the mean standing crop of 'other Arthropoda' between the discharge and background areas ($p > 0.05$) (Table 8).

The mean standing crop of Crustacea in the Wabamun Lake Water Treatment Plant discharge canal was 73,591 organisms/m^2. At Wabamun Lake sites, the mean standing crop of Crustacea ranged between 43,484 and 435,966 organisms/m^2. There was no significant difference in the mean standing crop of Crustacea between the discharge and background areas ($p > 0.05$) (Tables 8 and 9).

The mean standing crop of Oligochaeta in the Wabamun Lake Water Treatment Plant discharge canal was 19,441 organisms/m^2. At Wabamun Lake sites, the mean standing crop of Oligochaeta ranged between 2,602 and 20,430 organisms/m^2. There was a significantly higher mean standing crop of Oligochaeta in the discharge area (area mean 13,206 organisms/m^2) than the background area (area mean 4,046 organisms/m^2) ($p < 0.05$) (Table 8).

The mean standing crop of Nematoda in the Wabamun Lake Water Treatment Plant discharge canal was 61,742 organisms/m^2. At Wabamun Lake sites, the mean standing crop of Nematoda ranged between 7,402 and 75,561 organisms/m^2. There was no significant difference in mean standing crop of Nematoda between the discharge and background areas ($p > 0.05$) (Table 8).

The mean standing crop of the 'other groups' in the Wabamun Lake Water Treatment Plant discharge canal was 8,335 organisms/m^2. At Wabamun Lake sites, the mean standing crop of the 'other groups' ranged between 1,708 and 19,561 organisms/m^2. There was no significant difference in the mean standing crop of the 'other groups' between the discharge and background areas ($p > 0.05$) (Table 8).

In general, the Wabamun Lake Water Treatment Plant discharge canal was dominated by Crustacea, Nematoda, Chironomidae and Oligochaeta. Wabamun Lake was dominated by Crustacea, Chironomidae and Nematoda, followed by Oligochaeta and 'other groups'. A similar range of total abundance and total richness of organisms was found in Wabamun Lake as in the discharge canal. In the lake, the richness of ET, Oligochaeta and 'other groups' were significantly higher in the discharge area than in the background area, while the richness of 'other Arthropoda' and Crustacea were significantly lower in the discharge area than in the background area. The abundance of Chironomidae was significantly lower in the discharge area than in the background area, while the abundance of Oligochaeta was significantly higher in the discharge area than in the background area. Differences between the discharge and background areas of the lake may have been related to the different water quality of the Wabamun Lake Water Treatment Plant discharge, although differences may have also been related to habitat (substrate and the presence of macrophytes).

3.2.6 Benthic Invertebrate Community Analysis

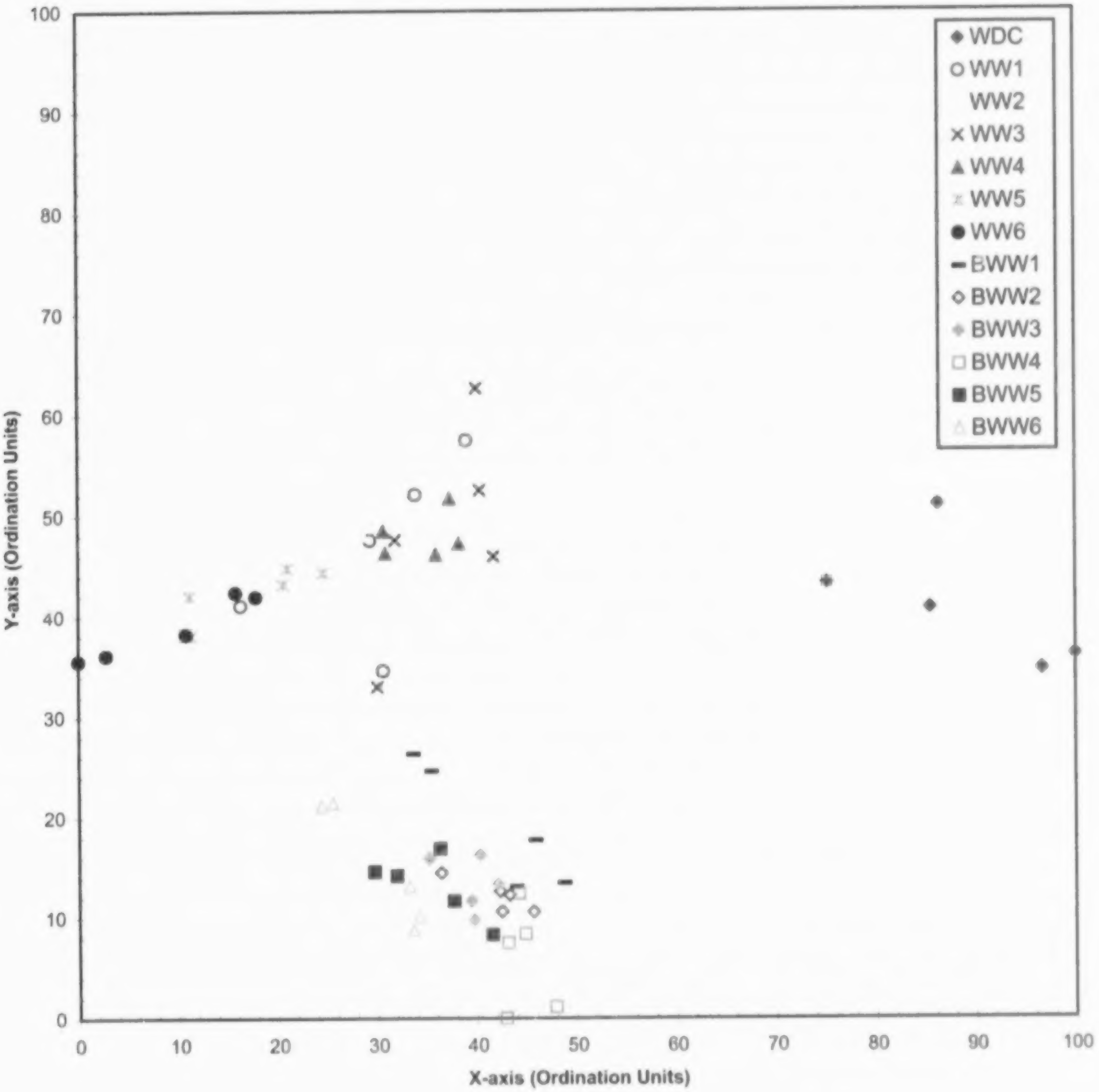
The detrended correspondence analysis (DCA) identifies groups of sites with similar benthic invertebrate community structure. The DCA ordination for site scores for the Wabamun Lake Water Treatment Plant area is provided in Figure 9 and the results in Appendix F.

The site ordination indicated three sample clusters. The Wabamun Lake Water Treatment Plant discharge canal site formed a cluster towards the right axis, while the Wabamun Lake discharge and background sites each formed a cluster towards the left axis. A cluster of samples represents those that have similar benthic community assemblages with the closeness of the samples within a cluster representing the degree of faunal homogeneity. The ordination indicated that there were differences in benthic community structure between the Wabamun Lake Water Treatment Plant discharge canal and Wabamun Lake. Smaller differences in benthic community structure occurred between the discharge and background areas in the lake.

The dominant benthic community structure of each cluster for the Wabamun Lake Water Treatment Plant area consisted of the following taxa (mean percent of total numbers):

Discharge Canal	Discharge Area	Background Area
Nematoda (31%)	*Chydorus sphaericus* gp. (42%)	*Cladotanytarsus* sp. (21%)
Cyclocypris sp. (14%)	Nematoda (14%)	*Chydorus sphaericus* gp. (16%)
Naididae (10%)	Cyclopoida (10%)	Cyclopoida (10%)
Cyclopoida (7%)	Tubificidae (7%)	Harpacticoida (9%)
Einfeldia sp. (5%)	*Hyalella azteca* (5%)	*Tanytarsus* sp. (8%)
Harpacticoida (5%)		Nematoda (8%)
Cypridopsis sp. (4%)		*Procladius* sp. (4%)
Procladius sp. (4%)		*Alona affinis (3%)*
Valvata sp. (3%)		*Candona* sp. (3%)

The dominant taxa in the Wabamun Lake Water Treatment Plant discharge canal consisted of roundworms, two ostracods, one aquatic worm group, two copepods, two



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Detrended Correspondence Analysis of Sites for the Water Treatment Area

chironomids and one snail. In the lake, the dominant taxa in the discharge area consisted of roundworms and one of the copepods which were dominant in the discharge canal, and the other dominant taxa included one cladoceran (water fleas), another aquatic worm group and one amphipod. One cladoceran, one copepod and the roundworms were the same between the discharge and background areas of the lake. In the background area, there were also three chironomids, another cladoceran, another copepod and one ostracod which were different from the discharge area.

3.2.7 Benthic Invertebrate Biomass

The mean total biomass (wet weight) (g/m^2) of benthic invertebrates for each site and the mean for each area is shown in Figure 10. The data are provided in Appendix G.

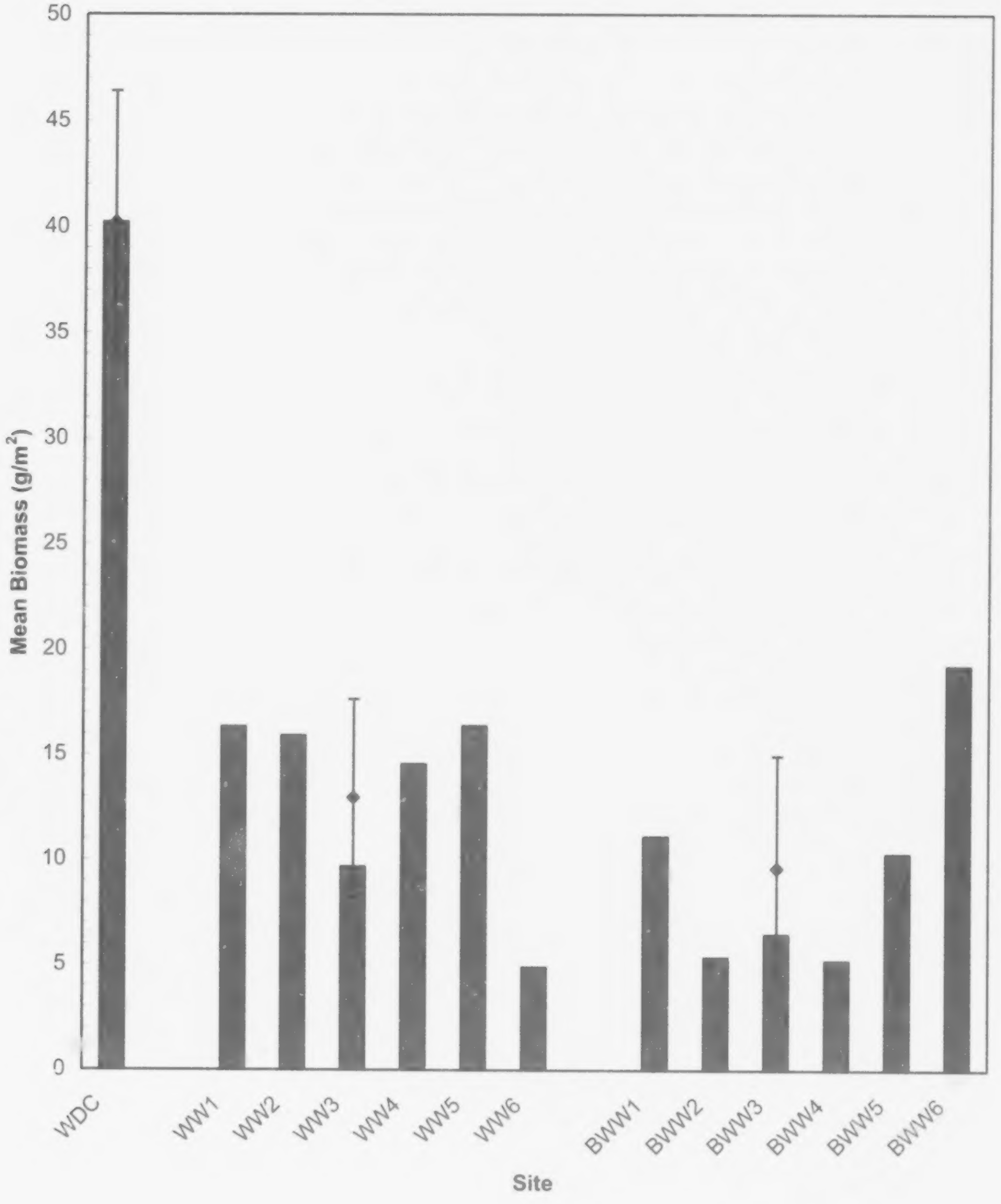
The mean total biomass was 40.2 g/m^2 in the Wabamun Lake Water Treatment Plant discharge canal, which was higher than in Wabamun Lake. In the lake, the mean total biomass in the discharge area was 12.9 g/m^2 (ranging between 4.9 and 16.4 g/m^2), while in the background area it was slightly lower at 9.6 g/m^2 (ranging between 5.2 and 19.2 g/m^2). There was no significant difference in mean total biomass between the discharge and background areas ($p > 0.05$).

3.2.8 Benthic Invertebrate Trophic Analysis

A trophic (feeding group) analysis was used to determine if there were differences in trophic structure between areas. The percent of each feeding group of the total number of organisms for each site and area is presented in Appendix H.

The trophic analysis showed that the Wabamun Lake Water Treatment Plant discharge canal was dominated by detritivores (50%), omnivores (25%), herbivores (12%) and detritivore/herbivores (8%) (Figure 11). In the lake, both the discharge and background areas were dominated by omnivores (area means 49 and 38%, respectively), detritivores (area means 30 and 13%, respectively), herbivores (area means 15 and 21%, respectively) and detritivore/herbivores (area means 4 and 23%, respectively) (Figure 11). Area means for carnivores were less than 6%.

The percentage of detritivores was significantly higher in the discharge than background area ($p < 0.05$), while the percentage of detritivore/herbivores was significantly higher in the background than discharge area ($p < 0.05$) (Table 10). The higher percentage of detritivores in the discharge area was a result of the higher numbers of roundworms (Nematoda) and aquatic worms (Tubificidae), while the higher percentage of detritivore/herbivores in the background area was the result of the higher numbers of several chironomids. The percentages of carnivores, herbivores and omnivores were not significantly different between the discharge and background areas ($p > 0.05$) (Table 10).



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Legend

Ɨ Area Average and Standard Deviation

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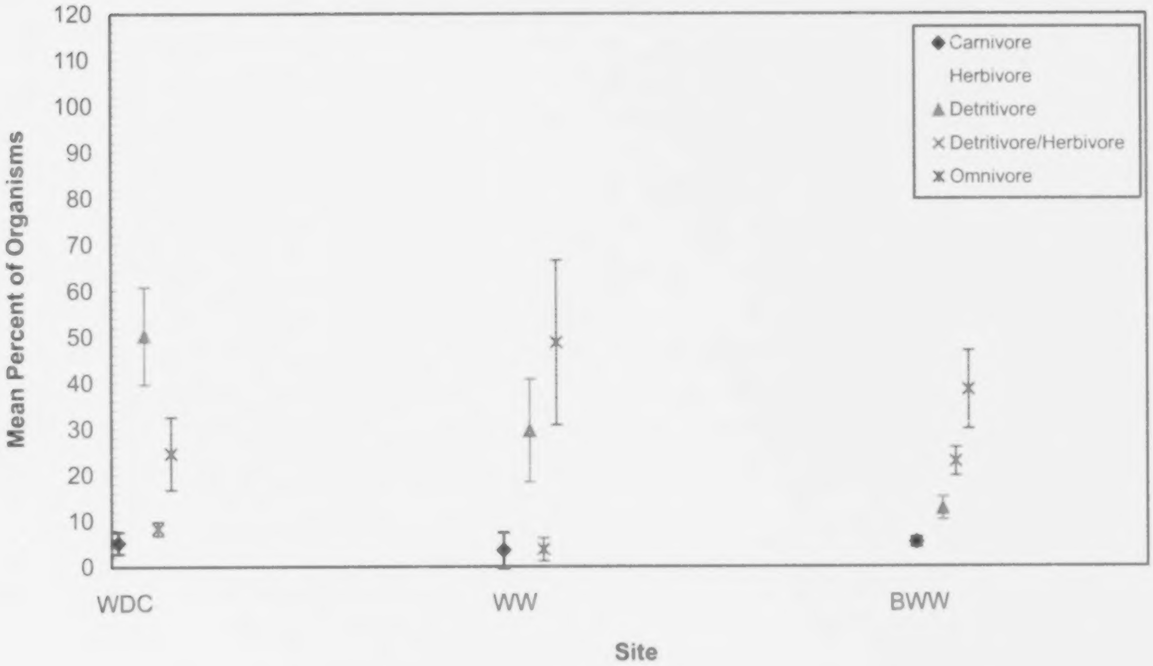
BENTHIC INVERTEBRATE ASSESSMENT
WABAMUN LAKE, NOVEMBER 2002

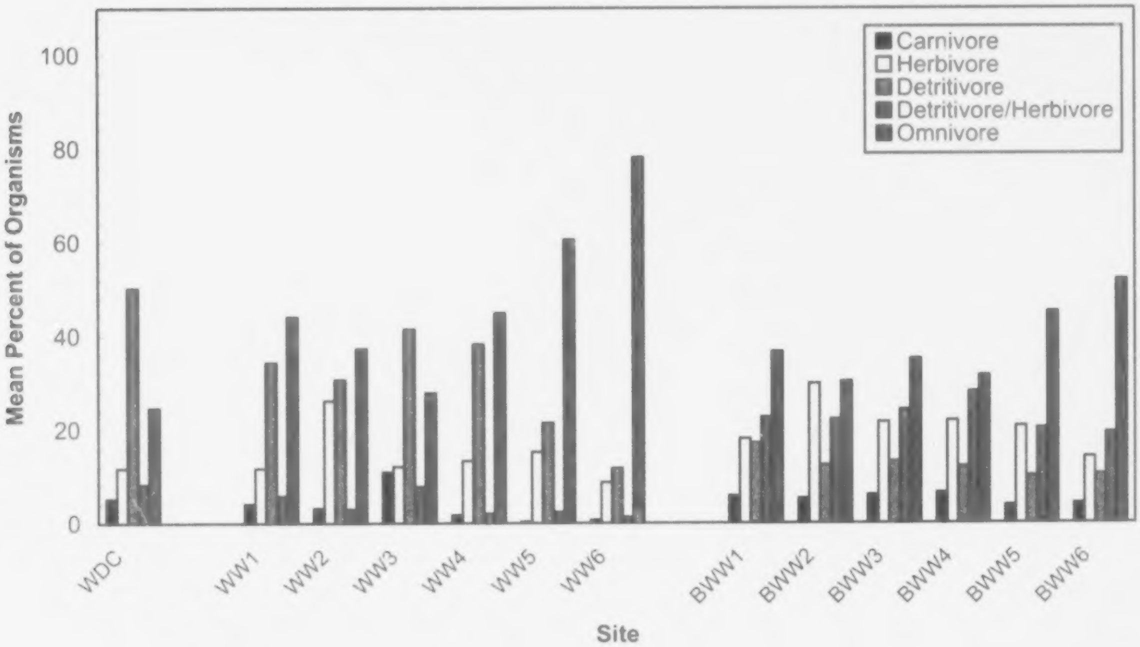
Figure No.

10

Title

Biomass of Sites for the Water Treatment Area





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BENTHIC INVERTEBRATE ASSESSMENT
WABAMUN LAKE, NOVEMBER 2002

Figure No.
11

Title
Percent Composition of Feeding Groups for the Water Treatment Area

Table 10. Results of ANOVA for benthic variables of feeding groups for the Wabamun Lake Water Treatment Plant area, November 2002.

Variable	ANOVA (p value)	Significant Difference Between Areas
Percent Carnivores	0.3065	-
Percent Herbivores	0.0751	-
Percent Detritivores	0.0045*	Discharge > Background
Percent Detritivore/Herbivores	0.0000*	Discharge < Background
Percent Omnivores	0.2316	-

* These probabilities were significant ($p < 0.05$) (i.e., means were not the same).

4.0 Summary and Conclusions

The pH values of both the Ash Lagoon and Wabamun Lake Water Treatment Plant study areas were within the CWQG, however, the pH of most of the sites was just above the SWQGA. Conductivity was lower in Wabamun Lake in both the Ash Lagoon and Wabamun Lake Water Treatment Plant study areas than in the Ash Lagoon and both discharge canals. The conductivity indicated that there was some influence of both discharges into the lake. Dissolved oxygen in Wabamun Lake, the Ash Lagoon and the discharge canals indicated that the water was well oxygenated during the November 2002 field survey. These dissolved oxygen values were well above the SWQGA and CWQG minima of 5 and 5.5 ppm, respectively.

The abundance and richness of organisms in the Ash Lagoon was higher than would have been expected on a substrate consisting mainly of a deposition of coal fines. The Ash Lagoon was dominated by Chironomidae and Crustacea. The discharge canal had higher abundance and richness of organisms than the Ash Lagoon. A similar range of abundance and richness of organisms was found in Wabamun Lake as in the discharge canal. Wabamun Lake was dominated by Crustacea and Chironomidae, while the discharge canal was dominated by Oligochaeta, Chironomidae and Crustacea. In the lake, the abundances of Chironomidae, Oligochaeta and Nematoda were significantly higher in the discharge area than in the background area.

The total biomass was considerably higher in the discharge canal than in the Ash Lagoon and in the lake. There was a significantly higher total biomass in the discharge area than in the background area of the lake, although the total abundance of organisms was not significantly different. A higher biomass can occur as a result of higher numbers of organisms or differences in biomass can also be related to the size of the organisms, since different taxonomic groups can consist of different sizes of organisms.

There were differences in benthic community structure between the Ash Lagoon, the discharge canal and Wabamun Lake. Smaller differences in benthic community structure occurred between the discharge and background areas in the lake. This was reflected in the feeding group structure where the percentage of detritivore/herbivores was significantly higher and the percentage of omnivores significantly lower in the discharge than background area of the lake.

The Wabamun Lake Water Treatment Plant discharge canal was dominated by Crustacea, Nematoda, Chironomidae and Oligochaeta. Wabamun Lake was dominated by Crustacea, Chironomidae and Nematoda, followed by Oligochaeta and 'other groups'. A similar range of total abundance and total richness of organisms was found in the lake as in the discharge canal. In the lake, the richness of Ephemeroptera/ Trichoptera, Oligochaeta and 'other groups' were significantly higher in the discharge area than in the background area, while the richness of 'other Arthropoda' and Crustacea were significantly lower in the discharge area than in the background area. The abundance of Chironomidae was significantly lower in the discharge area than in the background area, while the abundance of Oligochaeta was significantly higher in the discharge area than in the background area.

The mean total biomass in the Wabamun Lake Water Treatment Plant discharge canal was higher than in Wabamun Lake. There was no significant difference in mean total biomass between the discharge and background areas in the lake.

There were differences in benthic community structure between the Wabamun Lake Water Treatment Plant discharge canal and Wabamun Lake. Smaller differences in benthic community structure occurred between the discharge and background areas in the lake. The percentage of detritivores was significantly higher and the percentage of detritivore/herbivores significantly lower in the discharge than background area.

In conclusion, the benthic invertebrate survey indicated that there were some effects in the areas of the Ash Lagoon and the Wabamun Lake Water Treatment Plant discharges when compared to respective background areas in the lake. Overall, differences in the invertebrate community from the Ash Lagoon discharge area sites and background sites were slight and not indicative of a toxic effect from the Ash Lagoon discharge, however, signs of mild enrichment were apparent. The richness and total abundance of invertebrates were not significantly different between the discharge sites and the background sites, but the invertebrate biomass and the abundance of midges, aquatic earthworms and round worms were higher at the discharge sites, probably as a result of mild nutrient enrichment. There were some significant differences between the invertebrate community from the Wabamun Lake Water Treatment Plant discharge sites and background sites. The differences between the discharge and background areas of the lake may have been related to the different water quality of the Wabamun Lake Water Treatment Plant discharge, although differences may have also been related to habitat (substrate and the presence of macrophytes).

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6.0 Stantec Quality Management

This report, entitled "*Benthic Invertebrate Assessment in Wabamun Lake, November 2002*" was prepared for Alberta Environment by Stantec Consulting Ltd., September 2003 and was produced by the following individual:

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APPENDIX A

QA/QC

Appendix A. Statement of Stantec's Quality Assurance and Quality Control.

The basis of Stantec's Quality Assurance and Quality Control (QA/QC) program is the adherence to a Quality Management Plan. Stantec's QA/QC program is practiced for all types of studies. The QA program consists of externally imposed technical and management practices which ensure that the generation of quality and defensible data commensurate with the intended use of the data. The QC program consists of internal techniques which are used to measure and assess data quality and remedial actions to be taken when the data quality objectives are not realized. The assurance of adequate data is provided through Data Quality Objectives, which encompass all components of uncertainty in data generation.

Objective

The objective of Stantec's QA/QC program is to ensure that data generated for our clients is of known and defensible quality.

Organization

Project Manager:

- Communicates commitment to and delegates responsibility for quality assurance.
- Allocates funds and resources for effective quality assurance.
- Establishes Standard Operating Procedures (SOPs).

Quality Assurance Officer:

- Responsible for approval of all procedures.
- Authority for corrective action.
- Plans and evaluates QA/QC program.
- Reports any plans or problems of QA/QC to management.

Field Supervisor:

- Supervises compliance to QA/QC program.
- Helps establish SOPs.
- Follows approved field, sample and data analyses procedures and reporting of data as outlined in SOPs.

Field/Office Technicians:

- Have appropriate education and experience for the job.
- Follow approved field, sample and data analyses procedures and reporting of data as outlined in SOPs.

Standard Operating Procedures

SOPs are developed to meet Data Quality Objectives. Stantec's SOPs outline detailed protocols for sample collection, field procedures, laboratory procedures and reporting of data. Any changes to SOPs during a project are documented and justified.

All SOPs include meticulous record-keeping, proper collection of samples, adequate replication, preservation, shipping and storage of samples, instrument calibration and maintenance and the use of chain-of-custody forms to ensure sample continuity.

The operations of any analytical laboratories used by Stantec include the following Quality Control requirements as appropriate to the specific analysis: method blanks, laboratory duplicates, matrix spikes, analysis of reference materials, calibration control, surrogate spikes and internal standards.

APPENDIX B

PHYSICAL CHARACTERISTICS, NOVEMBER 2002

Appendix B-1. **Physical characteristics of benthic invertebrate sites in Wabamun Lake in the Ash Lagoon area, November 2002.**

Site	Water Depth (m)	Substrate	Odour
AL-1	2.8	grey-black silt/fines (coal fines)	-
AL-2	2.7	grey-black silt/fines (coal fines)	-
AL-3	2.7	grey-black silt/fines (coal fines)	-
AL-4	2.8	grey-black silt/fines (coal fines)	-
AL-5	2.8	grey-black silt/fines (coal fines)	-
ADC-1	0.65	brown silt/organics	-
ADC-2	0.65	brown silt/organics	-
ADC-3	0.65	brown silt/organics	-
ADC-4	0.65	brown silt/organics	-
ADC-5	0.65	brown silt/organics	-
AW1-1	3.1	brown silt/organics	H_2S-like odour
AW1-2	3.1	brown silt/organics	H_2S-like odour
AW1-3	2.9	brown silt/organics	H_2S-like odour
AW1-4	2.9	brown silt/organics	H_2S-like odour
AW1-5	2.9	brown silt/organics	H_2S-like odour
AW2-1	2.9	brown silt/organics	H_2S-like odour
AW2-2	2.9	brown silt/organics	H_2S-like odour
AW2-3	2.9	brown silt/organics	H_2S-like odour
AW2-4	2.9	brown silt/organics	H_2S-like odour
AW2-5	2.9	brown silt/organics	H_2S-like odour
AW3-1	3.1	brown silt/organics	H_2S-like odour
AW3-2	3.0	brown silt/organics	H_2S-like odour
AW3-3	3.1	brown silt/organics	H_2S-like odour
AW3-4	3.1	brown silt/organics	H_2S-like odour
AW3-5	3.0	brown silt/organics	H_2S-like odour
AW4-1	2.7	brown silt/organics	H_2S-like odour
AW4-2	2.7	brown silt/organics	H_2S-like odour
AW4-3	2.7	brown silt/organics	H_2S-like odour
AW4-4	2.7	brown silt/organics	H_2S-like odour
AW4-5	2.7	brown silt/organics	H_2S-like odour

(continued)

Appendix B-1. (continued)

Site	Water Depth (m)	Substrate	Odour
AW5-1	2.6	brown silt/organics	H_2S-like odour
AW5-2	2.7	brown silt/organics	H_2S-like odour
AW5-3	2.6	brown silt/organics	H_2S-like odour
AW5-4	2.6	brown silt/organics	H_2S-like odour
AW5-5	2.6	brown silt/organics	H_2S-like odour
AW6-1	2.8	brown silt/organics	H_2S-like odour
AW6-2	2.8	brown silt/organics	H_2S-like odour
AW6-3	2.6	brown silt/organics	H_2S-like odour
AW6-4	2.8	brown silt/organics	H_2S-like odour
AW6-5	2.6	brown silt/organics, macrophytes	H_2S-like odour
BAW1-1	3.0	brown fine sand/silt/organics, black coal flakes	Organic
BAW1-2	3.0	brown fine sand/silt/organics, black coal flakes	Organic
BAW1-3	3.0	brown fine sand/silt/organics, black coal flakes	Organic
BAW1-4	3.0	brown fine sand/silt/organics, black coal flakes	organic
BAW1-5	3.0	brown fine sand/silt/organics, black coal flakes	organic
BAW2-1	3.0	brown fine sand/silt/organics	H_2S-like odour
BAW2-2	3.0	brown fine sand/silt/organics	H_2S-like odour
BAW2-3	3.0	brown fine sand/silt/organics	H_2S-like odour
BAW2-4	3.1	brown fine sand/silt/organics	H_2S-like odour
BAW2-5	3.1	brown fine sand/silt/organics	H_2S-like odour
BAW3-1	2.9	brown fine sand/silt/organics, black coal flakes	H_2S-like odour
BAW3-2	2.9	brown fine sand/silt/organics, black coal flakes	H_2S-like odour
BAW3-3	2.9	brown fine sand/silt/organics, black coal flakes	H_2S-like odour
BAW3-4	2.9	brown fine sand/silt/organics, black coal flakes	H_2S-like odour
BAW3-5	3.0	brown fine sand/silt/organics, black coal flakes	H_2S-like odour
BAW4-1	2.8	brown fine sand/silt/organics, black coal flakes	H_2S-like odour
BAW4-2	2.8	brown fine sand/silt/organics, black coal flakes	H_2S-like odour
BAW4-3	2.8	brown fine sand/silt/organics, black coal flakes	H_2S-like odour
BAW4-4	2.9	brown fine sand/silt/organics, black coal flakes	H_2S-like odour
BAW4-5	2.8	brown fine sand/silt/organics, black coal flakes	H_2S-like odour

(continued)

Appendix B-1. (concluded)

Site	Water Depth (m)	Substrate	Odour
BAW5-1	2.8	brown silt/organics	organic
BAW5-2	2.6	brown silt/organics	organic
BAW5-3	2.7	brown silt/organics	organic
BAW5-4	2.7	brown silt/organics	organic
BAW5-5	2.7	brown silt/organics	organic
BAW6-1	2.7	brown silt/organics	organic
BAW6-2	2.6	brown silt/organics	organic
BAW6-3	2.6	brown silt/organics	organic
BAW6-4	2.6	brown silt/organics	organic
BAW6-5	2.6	brown silt/organics	organic

Appendix B-2. Physical characteristics of benthic invertebrate sites in Wabamun Lake Water Treatment Plant area, November 2002.

Site	Water Depth (m)	Substrate	Odour
WDC-1	1.7	brown silt/organics	hydrocarbon-like
WDC-2	1.7	brown silt/organics	hydrocarbon-like
WDC-3	1.7	brown silt/organics	hydrocarbon-like
WDC-4	1.7	brown silt/organics	hydrocarbon-like
WDC-5	1.7	brown silt/organics	hydrocarbon-like
WW1-1	3.0	brown sand/silt/organics, coal flakes, macrophytes	-
WW1-2	2.9	brown sand/silt/organics, coal flakes, macrophytes	-
WW1-3	2.9	brown sand/silt/organics, coal flakes, macrophytes	-
WW1-4	2.9	brown sand/silt/organics, coal flakes, macrophytes	-
WW1-5	2.9	brown sand/silt/organics, coal flakes, macrophytes	-
WW2-1	2.6	brown sand/silt/organics, coal flakes, macrophytes	-
WW2-2	2.6	brown sand/silt/organics, coal flakes, macrophytes	-
WW2-3	2.6	brown sand/silt/organics, coal flakes, macrophytes	-
WW2-4	2.6	brown sand/silt/organics, coal flakes, macrophytes	-
WW2-5	2.6	brown sand/silt/organics, coal flakes, macrophytes	-
WW3-1	3.2	brown sand/silt/organics, coal flakes, macrophytes	-
WW3-2	3.2	brown sand/silt/organics, coal flakes, macrophytes	
WW3-3	3.2	brown sand/silt/organics, coal flakes, macrophytes	
WW3-4	3.2	brown sand/silt/organics, coal flakes, macrophytes	
WW3-5	3.2	brown sand/silt/organics, coal flakes, macrophytes	
WW4-1	3.1	brown sand/silt/organics, coal flakes, macrophytes	-
WW4-2	3.1	brown sand/silt/organics, coal flakes, macrophytes	-
WW4-3	3.1	brown sand/silt/organics, coal flakes, macrophytes	-
WW4-4	3.0	brown sand/silt/organics, coal flakes, macrophytes	-
WW4-5	3.0	brown sand/silt/organics, coal flakes, macrophytes	-
WW5-1	3.0	brown sand/silt/organics, coal flakes, macrophytes	-
WW5-2	3.0	brown sand/silt/organics, coal flakes, macrophytes	-
WW5-3	2.9	brown sand/silt/organics, coal flakes, macrophytes	-
WW5-4	2.9	brown sand/silt/organics, coal flakes, macrophytes	-
WW5-5	2.9	brown sand/silt/organics, coal flakes, macrophytes	-

(continued)

Appendix B-2. **(continued)**

Site	Water Depth (m)	Substrate	Odour
WW6-1	3.0	brown sand/sillt/organics, macrophytes	-
WW6-2	3.0	brown sand/sillt/organics, macrophytes	-
WW6-3	3.0	brown sand/sillt/organics, macrophytes	-
WW6-4	3.0	brown sand/sillt/organics, macrophytes	-
WW6-5	3.0	brown sand/sillt/organics, macrophytes	-
BWW1-1	3.3	brown sand/silt/organics	organic
BWW1-2	3.3	brown sand/silt/organics	organic
BWW1-3	3.3	brown sand/silt/organics	organic
BWW1-4	3.3	brown sand/silt/organics	organic
BWW1-5	3.3	brown sand/silt/organics	organic
BWW2-1	3.3	brown sand/silt/organics	organic
BWW2-2	3.3	brown sand/silt/organics	organic
BWW2-3	3.3	brown sand/silt/organics	organic
BWW2-4	3.3	brown sand/silt/organics	organic
BWW2-5	3.3	brown sand/silt/organics	organic
BWW3-1	3.3	brown sand/silt/organics	organic
BWW3-2	3.3	brown sand/silt/organics	organic
BWW3-3	3.3	brown sand/silt/organics	organic
BWW3-4	3.3	brown sand/silt/organics	organic
BWW3-5	3.3	brown sand/silt/organics	organic
BWW4-1	3.2	brown sand/silt/organics	organic
BWW4-2	3.2	brown sand/silt/organics	organic
BWW4-3	3.2	brown sand/silt/organics	organic
BWW4-4	3.2	brown sand/silt/organics	organic
BWW4-5	3.2	brown sand/silt/organics	organic
BWW5-1	3.1	brown sand/silt/organics	-
BWW5-2	3.1	brown sand/silt/organics	-
BWW5-3	3.1	brown sand/silt/organics	-
BWW5-4	3.1	brown sand/silt/organics	-
BWW5-5	3.1	brown sand/silt/organics	-

(continued)

Appendix B-2. (concluded)

Site	Water Depth (m)	Substrate	Odour
BWW6-1	3.2	brown sand/silt/organics, coal flakes, macrophytes	-
BWW6-2	3.2	brown sand/silt/organics, coal flakes, macrophytes	-
BWW6-3	3.2	brown sand/silt/organics, coal flakes, macrophytes	-
BWW6-4	3.2	brown sand/silt/organics, coal flakes, macrophytes	-
BWW6-5	3.2	brown sand/silt/organics, coal flakes, macrophytes	-

APPENDIX C

BENTHIC INVERTEBRATE SAMPLE SORTING QC, NOVEMBER 2002

Appendix C. **Sorting efficiency of benthic invertebrate samples collected from Wabamun Lake, November 2002.**

Project: Alberta Environment - Wabamun Lake Assessment

Project No.: 108-59571

Sampling Date: November 2002

Re-Sorter: Jeff Johnson

Site-Sample	Total Number of Organisms				Percent Recovery		
	Initial Sort		Re-Sort				
	Coarse	Fine	Coarse	Fine	Coarse	Fine	Average
AL-4	498	250	8	7	98.4	97.3	97.8
AW1-4	962	336	9	3	99.1	99.1	99.1
AW2-2	799	320	22	3	97.3	99.1	98.2
AW3-4	259	271	6	5	97.7	98.2	98.0
AW5-1	1,021	329	6	5	99.4	98.5	99.0
BAW2-2	329	324	3	7	99.1	97.9	98.5
BAW3-2	290	313	1	4	99.7	98.7	99.2
BAW6-3	342	399	11	7	96.9	98.3	97.6
WW2-2	414	205	7	7	98.3	96.7	97.5
WW4-4	221	240	2	5	99.1	98.0	98.5
WW6-3	110	244	3	0	97.3	100	98.7
BWW1-2	128	420	4	12	97.0	97.2	97.1
BWW4-3	79	192	1	2	98.8	99.0	98.9
BWW6-4	176	326	1	6	99.4	98.2	98.8

APPENDIX D

BENTHIC INVERTEBRATE SPECIES LIST AND IDENTIFICATIONS AND NUMBERS PER SAMPLE, NOVEMBER 2002

Appendix D-1. Benthic invertebrate species list with species codes and feeding groups for Wabamun Lake, fall 2002.

Species Code	Taxa	Feeding Group*
	ARTHROPODA	
	INSECTA	
	Ephemeroptera (mayflies)	
	Baetidae	
001	*Callibaetis* sp. (*latipennis*)	DH
	Caenidae	
002	*Caenis* sp.	DH
	Ephemeridae	
003	*Ephemera* sp.	DH
	Leptophlebiidae	
004	*Leptophlebia* sp. (*cupida)*	DH
	Trichoptera (caddisflies)	
	Hydropsychidae	
005	*Cheumatopsyche* sp.	O
006	*Hydropsyche* sp.	O
	Hydroptilidae	
007	*Agraylea* sp.	H
008	*Hydroptila* sp.	H
009	*Oxyethira* sp.	H
	Leptoceridae	
010	*Mystacides* sp. (*sepulchralis*)	DH
011	*Oecetis* sp.	C
012	*Triaenodes* sp.	H
	Molannidae	
013	*Molanna* sp. (*flavicornis*)	DH
	Phryganeidae	
014	*Agrypnia* sp. (*straminea)*	DH
015	*Phryganea* sp. (*cinerea*)	DH
	Polycentropodidae	
016	*Neureclipsis* sp.	O
	Diptera (flies, midges)	
	Ceratopogonidae (biting midges)	
017	*Bezzia* gp	C
018	*Culicoides* sp.	C
019	*Palpomyia* gp.	C
	Chaoboridae (phantom midges)	
020	*Chaoborus* sp. (*flavicans*)	C
	Empididae (dance flies)	
021	*Hemerodromia* sp.	C
	Simuliidae (black flies)	
022	*Simulium* sp. (*vittatum* complex)	O
	Tabanidae (deer flies)	
023	*Chrysops* sp.	C

(continued)

Apppendix D-1. (continued)

Species Code	Taxa	Feeding Group*
	Tipulidae (crane flies)	
024	*Limnophila* sp.	C
025	*Pilaria* sp.	C
	Chironomidae (midges)	
	Chironominae	
	Chironomini Tribe	
026	*Chironomus* spp.	DH
027	*Cladopelma* sp.	D
028	*Cryptochironomus* sp.	C
029	*Cryptotendipes* sp.	D
030	*Dicrotendipes* sp.	DH
031	*Demicryptochironomus* sp.	D
032	*Einfeldia* sp.	D
033	*Endochironomous* sp.	DH
034	*Glyptotendipes* sp.	DH
035	*Microtendipes* sp.	O
036	*Parachironomus* sp.	C
037	*Paracladopelma* sp.	D
038	*Paratendipes* sp.	D
039	*Polypedilum* sp.	DH
040	*Pseudochironomus* sp.	D
041	*Stictochironomus* sp.	DH
042	*Tribelos* sp.	D
	Tanytarsini Tribe	
043	*Cladotanytarsus* sp.	DH
044	*Micropsectra* sp.	D
045	*Paratanytarsus* sp.	D
046	*Stempellinella* sp.	D
047	*Tanytarsus* sp.	O
048	Chironominae (early instar)	D
	Diamesinae	
	Diamesini Tribe	
049	*Potthastia longimana* gp.	DH
	Orthocladiinae	
050	*Corynoneura* sp.	D
051	*Cricotopus* sp.	DH
052	*Cricotopus/Orthocladius* spp.	DH
053	*Diplocladius* sp.	D
054	*Metriocnemus* sp.	D
055	*Nanocladius* sp.	D
056	*Psectrocladius* sp.	DH
057	*Thienemanniella* sp.	D
058	*Zalutschia* sp.	D
059	Orthocladiinae (early instar)	D
	Tanypodinae	
	Coelotanypodini Tribe	
060	*Clinotanypus* sp.	C

(continued)

Apppendix D-1. (continued)

Species Code	Taxa	Feeding Group*
	Natarsiini Tribe	
061	*Natarsia* sp.	C
	Pentaneurini Tribe	
062	*Ablabesmyia* sp.	C
063	*Thienemannimyia* gp.	C
	Procladiini Tribe	
064	*Procladius* sp.	C
	Tanypodini Tribe	
065	*Tanypus* sp.	C
	Coleoptera (beetles)	
	Haliplidae	
066	*Haliplus sp*	H
	Hemiptera	
	Corixidae (water boatmen)	
067	*Arctocorisa* sp.	DH
068	*Sigara* spp. (*bicoloripennis, solensis*)	DH
069	Lepidoptera (aquatic moths)	H
	Odonata	
	Aeshnidae (dragonflies)	
070	*Aeshna* sp.	C
	Coenagrionidae (damselfies)	
071	*Enallagma* sp. (*boreale*)	C
	ARACHNIDA	
	Hydracarina (water mites)	
	Arrenuridae	
072	*Arrenurus* sp.	C
	Hydrodromidae	
073	*Hydrodroma* sp.	C
	Limnesiidae	
074	*Limnesia* sp.	C
	Limnocharidae	
075	*Limnochares* sp.	C
	Pionidae	
076	*Piona* spp.	C
	Unionicolidae	
077	*Neumania* sp.	C
	CRUSTACEA	
	BRANCHIOPODA	
	Cladocera (water fleas)	
	Bosminidae	
078	*Bosmina longirostris*	O

(continued)

Apppendix D-1. (continued)

Species Code	Taxa	Feeding Group*
	Chydoridae	
079	*Acroperus harpae*	O
080	*Alona affinis*	O
081	*Alona rectangula*	O
082	*Chydorus sphaericus* gp.	O
083	*Eurycercus lamellatus* gp.	O
084	*Leydigia leydigi*	O
085	*Pleuroxus denticulatus*	O
	Daphnidae	
086	*Ceriodaphnia quadrangula*	O
087	*Daphnia galeata mendotae*	O
088	*Daphnia pulex* gp.	O
089	*Daphnia retrocurva*	O
090	*Simocephalus vetulus*	O
	Macrothricidae	
091	*Ilyocryptus sordidus*	O
092	*Macrothrix laticornis*	O
	Sididae	
093	*Diaphanosoma birjei*	O
	COPEPODA (copepods)	
094	Calanoida	H
095	Cyclopoida	H
096	Harpacticoida	H
	OSTRACODA (seed shrimps)	
	Candonidae	
097	*Candona* sp.	O
	Cyclocypridae	
098	*Cyclocypris* sp.	O
	Cypridae	
099	*Cypridopsis* sp.	O
	Darwinulidae	
100	*Darwinula stevensoni*	O
	Limnocytheridae	
101	*Limnocythere* sp.	O
	MALACOSTRACA	
	Amphipoda (scuds)	
102	*Gammarus lacustris*	D
103	*Hyalella azteca*	D
	ANNELIDA	
	OLIGOCHAETA (aquatic earthworms)	
104	Enchytraeidae	D

(continued)

Appendix D-2. **Benthic invertebrate species identifications and numbers per sample (per 0.046 m^2), mean number (per 0.046 m^2), mean standing crop (SC) (number/m^2) and percent of total for the Ash Lagoon Area, November 2002.**

SITE AL

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	1	0	0	0	0.2	4.3	0.01
002	*Caenis* sp.	0	0	0	0	0	0	0.0	0.00
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	0	0	0	0	0	0	0.0	0.00
011	*Oecetis* sp.	0	0	0	0	0	0	0.0	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	5	4	1	1	3	2.8	60.2	0.10
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	0	0	1	0.2	4.3	0.01
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	22	25	5	8	15	15	322.6	0.51
020	*Chaoborus* sp.	0	3	5	4	2	2.8	60.2	0.10
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	0	0	1	0	0.2	4.3	0.01
027	*Cladopelma* sp.	8	0	0	0	0	1.6	34.4	0.05
028	*Cryptochironomus* sp.	8	0	0	0	0	1.6	34.4	0.05
029	*Cryptotendipes* sp.	512	1216	1932	1336	1381	1275.4	27428.0	43.73
030	*Dicrotendipes* sp.	0	0	1	0	0	0.2	4.3	0.01
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	0	0	0	0	0	0.0	0.00
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	0	0	0	0	0	0	0.0	0.00
037	*Paracladopelma* sp.	16	0	0	1	0	3.4	73.1	0.12
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	1	0	0	0	0	0.2	4.3	0.01

SITE AL (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	56	84	100	54	80	74.8	1608.6	2.56
044	*Micropsectra* sp.	8	10	0	10	0	5.6	120.4	0.19
045	*Paratanytarsus* sp.	0	0	0	0	0	0	0.0	0.00
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	154	75	54	30	94	81.4	1750.5	2.79
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	0	0	0	0	0	0.0	0.00
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	0	0	0	0	0	0	0.0	0.00
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	15	9	20	19	20	16.6	357.0	0.57
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	0	0	0.0	0.00
063	*Thienemannimyia* gp.	0	0	1	0	0	0.2	4.3	0.01
	Procladiini Tribe								
064	*Procladius* sp.	370	503	352	483	529	447.4	9621.5	15.34
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00
	Hydracarina								
072	*Arrenurus* sp.	0	0	0	0	0	0	0.0	0.00
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00

SITE AL (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Cladocera								
074	*Limnesia* sp.	0	0	2	0	0	0.4	8.6	0.01
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	0	0	1	0	0.2	4.3	0.01
077	*Neumania* sp.	0	0	0	0	1	0.2	4.3	0.01
078	*Bosmina longirostris*	0	0	0	0	0	0	0.0	0.00
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	0	0	0	0	0	0	0.0	0.00
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	32	0	0	0	0	6.4	137.6	0.22
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	0	0	0	0	0	0	0.0	0.00
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	0	0	0	0	0	0	0.0	0.00
088	*Daphnia pulex* gp.	14	22	0	20	16	14.4	309.7	0.49
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	0	0	0	0	0	0.0	0.00
092	*Macrothrix laticornis*	0	0	0	10	0	2	43.0	0.07
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	8	20	41	0	10	15.8	339.8	0.54
095	Cyclopoida	392	631	1021	753	720	703.4	15126.9	24.12
096	Harpacticoida	0	0	0	0	0	0	0.0	0.00
	Ostracoda								
097	*Candona* sp.	0	0	0	0	0	0	0.0	0.00
098	*Cyclocypris* sp.	8	0	0	0	0	1.6	34.4	0.05
099	*Cypridopsis* sp.	8	0	0	0	0	1.6	34.4	0.05
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	32	0	0	0	10	8.4	180.6	0.29
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	0	0	0.0	0.00
103	*Hyalella azteca*	89	93	94	62	64	80.4	1729.0	2.76
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	0	0	0	0	0	0	0.0	0.00
107	Tubificidae	18	17	8	18	30	18.2	391.4	0.62
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	0	0	0	0	0.0	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00

SITE AL (concluded)

Code	Taxa	Number per Sample (0.046 m²)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
112	*Helobdella stagnalis*	0	0	0	0	0	0	0.0	0.00
113	*Piscicola milneri*	0	0	0	0	0	0	0.0	0.00
114	**Nematoda**	0	14	1	14	20	9.8	210.8	0.34
	Gastropoda								
115	*Valvata* spp.	0	0	0	0	0	0	0.0	0.00
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	0	0	0	0.0	0.00
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	102	119	130	173	97	124.2	2671.0	4.26
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	0	0	0	0	0	0	0.0	0.00
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**22**	**17**	**17**	**19**	**18**	**18.6**		
	Total Numbers	**1878**	**2846**	**3768**	**2998**	**3093**	**2916.6**	**62722.6**	

SITE ADC

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	609	405	4	121	9	229.6	4937.6	1.44
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	2	5	0	14	0	4.2	90.3	0.03
006	*Hydropsyche* sp.	5	2	0	9	3	3.8	81.7	0.02
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	2	2	0	1	0	1	21.5	0.01
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	0	0	0	0	0	0	0.0	0.00
011	*Oecetis* sp.	0	0	0	0	0	0	0.0	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	0	0	0	0	0	0	0.0	0.00
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	1	0	1	0	0.4	8.6	0.00
	Diptera								
017	*Bezzia* gp.	6	9	3	2	95	23	494.6	0.14
018	*Culicoides* sp.	1	0	0	1	0	0.4	8.6	0.00
019	*Palpomyia* gp.	202	0	0	0	0	40.4	868.8	0.25
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	200	1	1	0	1	40.6	873.1	0.26
022	*Similium* sp.	1403	1000	40	240	161	568.8	12232.3	3.58
023	*Chrysops* sp.	4	2	1	0	6	2.6	55.9	0.02
024	*Limnophila* sp.	1	3	0	2	11	3.4	73.1	0.02
025	*Pilaria* sp.	1	0	46	7	4	11.6	249.5	0.07
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	0	0	0	0	0	0.0	0.00
027	*Cladopelma* sp.	0	0	0	0	0	0	0.0	0.00
028	*Cryptochironomus* sp.	402	400	82	4	91	195.8	4210.8	1.23
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	0	0	0	0	0	0	0.0	0.00
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	0	0	0	1	0.2	4.3	0.00
034	*Glyptotendipes* sp.	1	0	0	0	0	0.2	4.3	0.00
035	*Microtendipes* sp.	0	0	0	0	1	0.2	4.3	0.00
036	*Parachironomus* sp.	0	0	0	1	0	0.2	4.3	0.00
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	3200	5600	522	480	4080	2776.4	59707.5	17.47
039	*Polypedilum* sp.	1	0	0	0	82	16.6	357.0	0.10
040	*Pseudochironomus* sp.	0	0	0	0	0	0	0.0	0.00
041	*Stictochironomus* sp.	1	2	0	0	1	0.8	17.2	0.01
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE ADC (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	0	0	0	0	0	0	0.0	0.00
044	*Micropsectra* sp.	0	0	0	1	41	8.4	180.6	0.05
045	*Paratanytarsus* sp.	0	0	0	0	0	0	0.0	0.00
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	0	0	0	0	0	0	0.0	0.00
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	1	0	0	0	0.2	4.3	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	800	1000	160	240	440	528	11354.8	3.32
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	120	0	24	516.1	0.15
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	0	0	0	0	0	0.0	0.00
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	0	0	0	0	0	0	0.0	0.00
059	Orthocladiinae (early instar)	0	0	0	0	240	48	1032.3	0.30
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	10	0	0	3	4	3.4	73.1	0.02
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	1	0	0.2	4.3	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	0	0	0.0	0.00
063	*Thienemannimyia* gp.	0	200	46	0	0	49.2	1058.1	0.31
	Procladiini Tribe								
064	*Procladius* sp.	0	0	0	1	2	0.6	12.9	0.00
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	1	0	0	1	2	0.8	17.2	0.01
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	1	0.2	4.3	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	210	2	0	2	14	45.6	980.6	0.29

SITE ADC (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Odonata								
070	*Aeshna* sp.	0	0	0	1	0	0.2	4.3	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00
	Hydracarina								
072	*Arrenurus* sp.	0	0	0	0	0	0	0.0	0.00
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00
074	*Limnesia* sp.	0	0	0	0	0	0	0.0	0.00
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	0	0	0	0	0	0.0	0.00
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	0	0	0	0	0	0	0.0	0.00
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	0	0	0	0	0	0	0.0	0.00
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	0	200	0	240	120	112	2408.6	0.70
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	0	0	0	0	0	0	0.0	0.00
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	0	0	0	0	0	0	0.0	0.00
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	0	0	0	0	0	0.0	0.00
092	*Macrothrix laticornis*	0	0	0	0	0	0	0.0	0.00
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	0	200	80	0	0	56	1204.3	0.35
095	Cyclopoida	600	400	160	600	480	448	9634.4	2.82
096	Harpacticoida	0	0	0	0	0	0	0.0	0.00
	Ostracoda								
097	*Candona* sp.	0	0	0	0	280	56	1204.3	0.35
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	1400	1800	720	360	720	1000	21505.4	6.29
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	1	0	0.2	4.3	0.00
103	*Hyalella azteca*	342	941	229	241	234	397.4	8546.2	2.50
	Oligochaeta								
104	Enchytraeidae	1	0	0	0	0	0.2	4.3	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	200	0	0	0	320	104	2236.6	0.65
107	Tubificidae	9474	15471	2186	1718	5638	6897.4	148331.2	43.40

SITE ADC (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Hirudinea								
108	*Erpobdella punctata*	5	4	0	0	1	2	43.0	0.01
109	*Mooreobdella fervida*	0	0	0	0	0	0	0.0	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	1	0	0	0	0	0.2	4.3	0.00
113	*Piscicola milneri*	0	0	0	0	0	0	0.0	0.00
114	**Nematoda**	638	828	481	592	1152	738.2	15875.3	4.64
	Gastropoda								
115	*Valvata* spp.	0	0	0	0	0	0	0.0	0.00
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	1	1	0	0	0	0.4	8.6	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	1	0	0	120	0	24.2	520.4	0.15
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	3242	1512	16	264	1620	1330.8	28619.4	8.37
124	*Sphaerium (Musculium)* sp.	20	2	0	5	1	5.6	120.4	0.04
	Turbellaria								
125	*Dugesia tigrina*	3	241	2	20	21	57.4	1234.4	0.36
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	0	0	0	0	176	35.2	757.0	0.22
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**35**	**29**	**18**	**33**	**35**	**30**		
	Total Numbers	**22990**	**30235**	**4779**	**5414**	**16053**	**15894.2**	**341810.8**	

SITE AW1

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	1	0	0	0.2	4.3	0.00
002	*Caenis* sp.	0	40	0	0	1	8.2	176.3	0.06
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	1	0.2	4.3	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	5	4	3	5	1	3.6	77.4	0.03
008	*Hydroptila* sp.	0	21	1	0	0	4.4	94.6	0.03
009	*Oxyethira* sp.	9	0	3	41	5	11.6	249.5	0.09
010	*Mystacides* sp.	0	0	0	0	0	0	0.0	0.00
011	*Oecetis* sp.	0	0	0	0	0	0	0.0	0.00
012	*Triaenodes* sp.	0	0	0	1	1	0.4	8.6	0.00
013	*Molanna* sp.	0	0	0	0	0	0	0.0	0.00
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	1	0.2	4.3	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	41	0	0	8.2	176.3	0.06
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	0	0	1	0	0	0.2	4.3	0.00
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	1	0	0	0.2	4.3	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	15	24	43	0	0	16.4	352.7	0.12
027	*Cladopelma* sp.	60	40	120	80	80	76	1634.4	0.57
028	*Cryptochironomus* sp.	1	0	1	0	0	0.4	8.6	0.00
029	*Cryptotendipes* sp.	1	0	0	0	0	0.2	4.3	0.00
030	*Dicrotendipes* sp.	52	124	143	294	189	160.4	3449.5	1.20
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	2	1	0	0	0	0.6	12.9	0.00
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	63	180	161	80	81	113	2430.1	0.85

SITE AW1 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	15	34	47	56	31	36.6	787.1	0.27
040	*Pseudochironomus* sp.	1	0	0	0	1	0.4	8.6	0.00
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	243	400	2926	2440	1603	1522.4	32739.8	11.39
044	*Micropsectra* sp.	2	0	0	0	1	0.6	12.9	0.00
045	*Paratanytarsus* sp.	17	8	15	7	14	12.2	262.4	0.09
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	242	440	642	1082	603	601.8	12941.9	4.50
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	40	0	0	0	8	172.0	0.06
051	*Cricotopus* sp.	0	0	0	0	40	8	172.0	0.06
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	20	0	0	0	4	86.0	0.03
056	*Psectrocladius* sp.	1	0	3	82	42	25.6	550.5	0.19
057	*Thienemanniella* sp.	0	0	0	40	80	24	516.1	0.18
058	*Zalutschia* sp.	41	40	80	0	40	40.2	864.5	0.30
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	1	3	1	0	0	1	21.5	0.01
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	124	82	89	3	84	76.4	1643.0	0.57
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	253	207	618	639	218	387	8322.6	2.90
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	40	0	0	8	172.0	0.06

SITE AW1 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	1	0	0	1	0.4	8.6	0.00
	Hydracarina								
072	*Arrenurus* sp.	0	0	0	0	0	0	0.0	0.00
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00
074	*Limnesia* sp.	2	3	3	5	2	3	64.5	0.02
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	0	3	1	0	0.8	17.2	0.01
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	200	80	280	40	120	144	3096.8	1.08
079	*Acroperus harpae*	0	0	0	0	80	16	344.1	0.12
080	*Alona affinis*	840	1120	760	880	760	872	18752.7	6.53
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	1560	1640	4160	2640	2440	2488	53505.4	18.62
083	*Eurycercus lamellatus* gp.	47	3	41	42	40	34.6	744.1	0.26
084	*Leydigia leydigi*	160	240	600	280	400	336	7225.8	2.51
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	160	0	80	0	0	48	1032.3	0.36
087	*Daphnia galeata mendotae*	80	120	80	80	0	72	1548.4	0.54
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	40	0	0	0	8	172.0	0.06
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	40	200	120	0	0	72	1548.4	0.54
092	*Macrothrix laticornis*	0	0	0	0	0	0	0.0	0.00
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	1440	680	880	240	400	728	15655.9	5.45
095	Cyclopoida	5160	3400	2720	1400	1160	2768	59526.9	20.72
096	Harpacticoida	80	400	80	120	160	168	3612.9	1.26
	Ostracoda								
097	*Candona* sp.	122	60	120	122	205	125.8	2705.4	0.94
098	*Cyclocypris* sp.	243	521	481	680	360	457	9828.0	3.42
099	*Cypridopsis* sp.	20	80	161	161	200	124.4	2675.3	0.93
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	0	0	40	40	0	16	344.1	0.12
	Amphipoda								
102	*Gammarus lacustris*	0	0	1	2	1	0.8	17.2	0.01
103	*Hyalella azteca*	187	326	621	739	535	481.6	10357.0	3.60
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	42	20	0	120	240	84.4	1815.1	0.63
107	Tubificidae	37	43	82	40	83	57	1225.8	0.43

SITE AW1 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	0	0	2	0.4	8.6	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	1	1	0	0.4	8.6	0.00
112	*Helobdella stagnalis*	1	3	4	1	2	2.2	47.3	0.02
113	*Piscicola milneri*	0	1	0	3	1	1	21.5	0.01
114	**Nematoda**	410	240	682	880	720	586.4	12610.8	4.39
	Gastropoda								
115	*Valvata* spp.	3	7	0	1	1	2.4	51.6	0.02
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	1	3	4	4	4	3.2	68.8	0.02
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	1	1	0	0	0.4	8.6	0.00
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	2	1	0	0	0	0.6	12.9	0.00
	Pelecypoda								
123	*Pisidium* sp.	78	87	253	219	166	160.6	3453.8	1.20
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	89	88	50	127	24	75.6	1625.8	0.57
126	**Microturbellaria**	0	20	0	120	80	44	946.2	0.33
	Hydrozoa								
127	*Hydra* sp.	90	21	123	564	290	217.6	4679.6	1.63
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**46**	**48**	**50**	**43**	**49**	**47.2**		
	Total Numbers	**12242**	**11157**	**17411**	**14402**	**11594**	**13361.2**	**287337.6**	

SITE AW2

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	1	0	0	0	0	0.2	4.3	0.00
002	*Caenis* sp.	1	2	0	0	0	0.6	12.9	0.00
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	18	0	3	2	4.6	98.9	0.04
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	2	11	0	4	2	3.8	81.7	0.03
010	*Mystacides* sp.	0	0	0	1	0	0.2	4.3	0.00
011	*Oecetis* sp.	0	0	0	0	0	0	0.0	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	0	0	0	0	0	0	0.0	0.00
014	*Agrypnia* sp.	0	0	1	0	1	0.4	8.6	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	1	0	0.2	4.3	0.00
	Diptera								
017	*Bezzia* gp.	1	1	0	40	0	8.4	180.6	0.07
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	1	0	0	0	0	0.2	4.3	0.00
020	*Chaoborus* sp.	0	0	0	2	0	0.4	8.6	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	2	0	0	1	1	0.8	17.2	0.01
027	*Cladopelma* sp.	0	0	0	160	0	32	688.2	0.26
028	*Cryptochironomus* sp.	4	43	1	3	1	10.4	223.7	0.08
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	46	140	137	130	150	120.6	2593.5	0.98
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	0	0	0	0	0	0.0	0.00
034	*Glyptotendipes* sp.	0	0	0	0	1	0.2	4.3	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	40	160	120	80	121	104.2	2240.9	0.85
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	66	53	46	58	68	58.2	1251.6	0.47
040	*Pseudochironomus* sp.	0	1	0	0	0	0.2	4.3	0.00
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE AW2 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	3961	4527	2722	3367	5845	4084.4	87836.6	33.16
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	0	8	210	6	46	54	1161.3	0.44
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	444	442	200	762	1417	653	14043.0	5.30
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	4	2	1	2	1.8	38.7	0.01
057	*Thienemanniella* sp.	0	0	40	0	0	8	172.0	0.06
058	*Zalutschia* sp.	40	0	0	40	0	16	344.1	0.13
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	1	1	0	2	2	1.2	25.8	0.01
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	1	80	2	0	2	17	365.6	0.14
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	315	454	198	444	410	364.2	7832.3	2.96
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	1	0	0	0	0.2	4.3	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00

SITE AW2 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Hydracarina								
072	*Arrenurus* sp.	0	0	0	0	1	0.2	4.3	0.00
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00
074	*Limnesia* sp.	27	14	6	6	20	14.6	314.0	0.12
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	4	0	4	3	41	10.4	223.7	0.08
077	*Neumania* sp.	2	3	0	0	0	1	21.5	0.01
	Cladocera								
078	*Bosmina longirostris*	40	160	360	320	560	288	6193.5	2.34
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	560	1080	1081	840	1442	1000.6	21518.3	8.12
081	*Alona rectangula*	0	0	40	0	0	8	172.0	0.06
082	*Chydorus sphaericus* gp.	400	2040	1920	920	920	1240	26666.7	10.07
083	*Eurycercus lamellatus* gp.	0	0	2	0	3	1	21.5	0.01
084	*Leydigia leydigi*	160	240	200	200	200	200	4301.1	1.62
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	40	0	0	8	172.0	0.06
087	*Daphnia galeata mendotae*	520	680	721	600	1082	720.6	15496.8	5.85
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	40	40	0	0	16	344.1	0.13
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	40	0	0	0	0	8	172.0	0.06
092	*Macrothrix laticornis*	0	0	0	0	0	0	0.0	0.00
093	*Diaphanosoma birjei*	40	0	0	0	0	8	172.0	0.06
	Copepoda								
094	Calanoida	561	1040	1241	560	641	808.6	17389.2	6.56
095	Cyclopoida	720	520	1120	360	1000	744	16000.0	6.04
096	Harpacticoida	0	0	40	0	80	24	516.1	0.19
	Ostracoda								
097	*Candona* sp.	201	161	160	120	204	169.2	3638.7	1.37
098	*Cyclocypris* sp.	80	80	40	320	561	216.2	4649.5	1.76
099	*Cypridopsis* sp.	40	80	0	0	120	48	1032.3	0.39
100	*Darwinula stevensoni*	40	0	0	0	0	8	172.0	0.06
101	*Limnocythere* sp.	0	80	40	40	0	32	688.2	0.26
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	2	0.4	8.6	0.00
103	*Hyalella azteca*	139	356	169	407	464	307	6602.2	2.49
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	0	160	80	40	280	112	2408.6	0.91
107	Tubificidae	82	42	120	81	44	73.8	1587.1	0.60
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	1	0	0.2	4.3	0.00
109	*Mooreobdella fervida*	0	0	0	0	0	0	0.0	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00

SITE AW2 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
111	*Glossiphonia complanata*	0	1	0	0	1	0.4	8.6	0.00
112	*Helobdella stagnalis*	1	1	0	2	2	1.2	25.8	0.01
113	*Piscicola milneri*	0	0	0	1	1	0.4	8.6	0.00
114	**Nematoda**	160	400	160	240	521	296.2	6369.9	2.40
	Gastropoda								
115	*Valvata* spp.	0	0	0	1	1	0.4	8.6	0.00
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	1	0	0	0.2	4.3	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	0	0	0	0.0	0.00
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	160	168	121	241	335	205	4408.6	1.66
124	*Sphaerium (Musculium)* sp.	0	0	1	0	0	0.2	4.3	0.00
	Turbellaria								
125	*Dugesia tigrina*	5	61	50	4	30	30	645.2	0.24
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	40	246	402	120	45	170.6	3668.8	1.38
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**39**	**40**	**38**	**42**	**43**	**40.4**		
	Total Numbers	**8948**	**13599**	**11838**	**10532**	**16672**	**12317.8**	**264898.9**	

SITE AW3

Code	Taxa	Number per Sample ($0.046 m^2$)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	1	0	1	3	0	1	21.5	0.01
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	0	80	16	344.1	0.11
010	*Mystacides* sp.	0	0	0	0	0	0	0.0	0.00
011	*Oecetis* sp.	0	0	0	0	0	0	0.0	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	0	0	0	0	0	0	0.0	0.00
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	2	0	0	1	0	0.6	12.9	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	0	0	0	0	0	0	0.0	0.00
020	*Chaoborus* sp.	0	1	0	0	0	0.2	4.3	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	1	3	204	1	0	41.8	898.9	0.28
027	*Cladopelma* sp.	100	0	100	100	0	60	1290.3	0.41
028	*Cryptochironomus* sp.	1	4	7	3	4	3.8	81.7	0.03
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	100	50	100	200	43	98.6	2120.4	0.67
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	0	0	0	0	0	0.0	0.00
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	100	0	0	0	80	36	774.2	0.24
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	44	64	68	41	81	59.6	1281.7	0.40
040	*Pseudochironomus* sp.	0	0	0	0	0	0	0.0	0.00
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE AW3 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	2900	1450	3900	6202	640	3018.4	64911.8	20.48
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	0	0	0	0	8	1.6	34.4	0.01
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	400	500	1600	1700	280	896	19268.8	6.08
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	0	0	0	1	0.2	4.3	0.00
057	*Thienemanniella* sp.	0	0	0	0	40	8	172.0	0.05
058	*Zalutschia* sp.	0	0	0	0	0	0	0.0	0.00
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	82	16.4	352.7	0.11
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	247	519	738	494	146	428.8	9221.5	2.91
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00
	Hydracarina								
072	*Arrenurus* sp.	0	51	0	0	0	10.2	219.4	0.07
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00

SITE AW3 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	29	35	41	54	11	34	731.2	0.23
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	6	13	106	3	41	33.8	726.9	0.23
077	*Neumania* sp.	100	53	101	101	0	71	1526.9	0.48
	Cladocera								
078	*Bosmina longirostris*	200	350	100	200	120	194	4172.0	1.32
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	2200	1850	7100	10600	400	4430	95268.8	30.06
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	300	900	400	700	1360	732	15741.9	4.97
083	*Eurycercus lamellatus* gp.	0	0	0	0	2	0.4	8.6	0.00
084	*Leydigia leydigi*	700	400	1600	1100	80	776	16688.2	5.26
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	100	0	0	0	0	20	430.1	0.14
087	*Daphnia galeata mendotae*	400	200	300	700	200	360	7741.9	2.44
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	0	0	0	0	0	0.0	0.00
092	*Macrothrix laticornis*	0	0	0	0	0	0	0.0	0.00
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	400	650	1300	701	280	666.2	14326.9	4.52
095	Cyclopoida	1000	550	2000	2100	520	1234	26537.6	8.37
096	Harpacticoida	0	0	600	600	40	248	5333.3	1.68
	Ostracoda								
097	*Candona* sp.	100	100	200	500	40	188	4043.0	1.28
098	*Cyclocypris* sp.	0	150	100	100	120	94	2021.5	0.64
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	0	0	0	0	40	8	172.0	0.05
101	*Limnocythere* sp.	100	50	100	200	0	90	1935.5	0.61
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	0	0	0.0	0.00
103	*Hyalella azteca*	3	6	208	110	451	155.6	3346.2	1.06
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	100	0	300	200	0	120	2580.6	0.81
107	Tubificidae	201	50	100	302	41	138.8	2984.9	0.94
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	0	0	1	0.2	4.3	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	0	0	1	0.2	4.3	0.00
112	*Helobdella stagnalis*	0	0	0	0	0	0	0.0	0.00
113	*Piscicola milneri*	0	0	0	0	0	0	0.0	0.00

SITE AW3 (concluded)

Code	Taxa	Number per Sample (0.046 m²)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
114	**Nematoda**	300	250	500	200	240	298	6408.6	2.02
	Gastropoda								
115	*Valvata* spp.	1	0	0	0	0	0.2	4.3	0.00
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	0	0	0	0.0	0.00
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	126	128	19	43	191	101.4	2180.6	0.69
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	1	0	51	10.4	223.7	0.07
126	**Microturbellaria**	0	0	0	100	0	20	430.1	0.14
	Hydrozoa								
127	*Hydra* sp.	0	50	0	0	40	18	387.1	0.12
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**30**	**27**	**29**	**30**	**34**	**30**		
	Total Numbers	**10262**	**8427**	**21894**	**27359**	**5755**	**14739.4**	**316976.3**	

SITE AW4

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	4	2	1	6	3	3.2	68.8	0.02
003	*Ephemera* sp.	1	0	0	0	0	0.2	4.3	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	2	1	1	4	1	1.8	38.7	0.01
008	*Hydroptila* sp.	0	0	0	100	0	20	430.1	0.13
009	*Oxyethira* sp.	41	0	0	100	0	28.2	606.5	0.18
010	*Mystacides* sp.	1	0	0	2	1	0.8	17.2	0.01
011	*Oecetis* sp.	0	0	0	0	0	0	0.0	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	0	0	0	0	0	0	0.0	0.00
014	*Agrypnia* sp.	1	0	0	1	0	0.4	8.6	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	2	0	3	101	1	21.4	460.2	0.13
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	0	0	0	0	0	0	0.0	0.00
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	1	0	0	0.2	4.3	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	1	2	0	3	3	1.8	38.7	0.01
027	*Cladopelma* sp.	0	0	100	0	0	20	430.1	0.13
028	*Cryptochironomus* sp.	2	3	5	3	3	3.2	68.8	0.02
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	278	324	127	33	24	157.2	3380.6	0.99
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	1	2	8	0	3	2.8	60.2	0.02
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	81	0	300	200	0	116.2	2498.9	0.73
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	303	299	300	170	83	231	4967.7	1.45
040	*Pseudochironomus* sp.	0	0	0	0	0	0	0.0	0.00
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE AW4 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	5014	3703	5900	4910	5706	5046.6	108529.0	31.74
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	181	2	119	219	9	106	2279.6	0.67
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	884	200	1203	504	503	658.8	14167.7	4.14
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	80	0	0	0	0	16	344.1	0.10
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	46	0	3	1	3	10.6	228.0	0.07
057	*Thienemanniella* sp.	40	0	0	100	0	28	602.2	0.18
058	*Zalutschia* sp.	80	0	0	0	0	16	344.1	0.10
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	1	1	0	0	0	0.4	8.6	0.00
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	42	100	2	0	101	49	1053.8	0.31
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	669	300	489	685	987	626	13462.4	3.94
	Tanypodini Tribe								
065	*Tanypus* sp.	1	0	0	0	0	0.2	4.3	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00
	Hydracarina								
072	*Arrenurus* sp.	2	0	0	1	0	0.6	12.9	0.00
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00

SITE AW4 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	25	19	9	11	1	13	279.6	0.08
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	3	0	8	0	0	2.2	47.3	0.01
077	*Neumania* sp.	1	0	0	1	0	0.4	8.6	0.00
	Cladocera								
078	*Bosmina longirostris*	760	700	700	1100	200	692	14881.7	4.35
079	*Acroperus harpae*	240	200	100	600	0	228	4903.2	1.43
080	*Alona affinis*	400	800	300	400	300	440	9462.4	2.77
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	2960	1400	3300	3400	2500	2712	58322.6	17.06
083	*Eurycercus lamellatus* gp.	49	206	13	114	104	97.2	2090.3	0.61
084	*Leydigia leydigi*	120	100	200	200	300	184	3957.0	1.16
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	320	1000	300	1500	1200	864	18580.6	5.43
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	40	0	0	0	0	8	172.0	0.05
090	*Simocephalus vetulus*	0	0	0	100	0	20	430.1	0.13
091	*Ilyocryptus sordidus*	0	0	0	0	0	0	0.0	0.00
092	*Macrothrix laticornis*	0	0	0	0	0	0	0.0	0.00
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	320	400	100	701	100	324.2	6972.0	2.04
095	Cyclopoida	1160	1300	1200	2200	1500	1472	31655.9	9.26
096	Harpacticoida	40	100	0	100	100	68	1462.4	0.43
	Ostracoda								
097	*Candona* sp.	200	0	0	100	100	80	1720.4	0.50
098	*Cyclocypris* sp.	240	400	300	300	200	288	6193.5	1.81
099	*Cypridopsis* sp.	0	0	100	0	0	20	430.1	0.13
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	0	0	0	200	0	40	860.2	0.25
	Amphipoda								
102	*Gammarus lacustris*	0	0	1	1	1	0.6	12.9	0.00
103	*Hyalella azteca*	673	519	712	706	348	591.6	12722.6	3.72
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	40	0	0	100	0	28	602.2	0.18
107	Tubificidae	85	101	201	1	100	97.6	2098.9	0.61
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	3	0	0	0	0	0.6	12.9	0.00
110	*Nephelopsus obscura*	0	1	0	0	0	0.2	4.3	0.00
111	*Glossiphonia complanata*	1	0	0	1	1	0.6	12.9	0.00
112	*Helobdella stagnalis*	1	2	0	1	2	1.2	25.8	0.01
113	*Piscicola milneri*	2	1	1	3	0	1.4	30.1	0.01

SITE AW4 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
114	**Nematoda**	760	300	1	501	202	352.8	7587.1	2.22
	Gastropoda								
115	*Valvata* spp.	3	3	5	3	6	4	86.0	0.03
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	1	0	1	4	0	1.2	25.8	0.01
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	0	0	0	0.0	0.00
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	120	69	74	71	70	80.8	1737.6	0.51
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	13	5	9	13	9	9.8	210.8	0.06
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	41	0	0	0	0	8.2	176.3	0.05
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**54**	**34**	**38**	**47**	**36**	**41.8**		
	Total Numbers	**16379**	**12565**	**16197**	**19575**	**14775**	**15898.2**	**341896.8**	

SITE AW5

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	1	2	1	0.8	17.2	0.01
002	*Caenis* sp.	98	8	99	10	9	44.8	963.4	0.29
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	1	0	0	0	0.2	4.3	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	2	2	1	1	21.5	0.01
008	*Hydroptila* sp.	0	1	1	20	0	4.4	94.6	0.03
009	*Oxyethira* sp.	46	1	13	47	7	22.8	490.3	0.15
010	*Mystacides* sp.	1	0	1	4	1	1.4	30.1	0.01
011	*Oecetis* sp.	0	0	1	0	0	0.2	4.3	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	0	0	1	0	0	0.2	4.3	0.00
014	*Agrypnia* sp.	0	0	0	2	0	0.4	8.6	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	9	3	10	2	0	4.8	103.2	0.03
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	0	0	0	0	0	0	0.0	0.00
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	2	5	3	3	6	3.8	81.7	0.02
027	*Cladopelma* sp.	41	40	40	80	160	72.2	1552.7	0.46
028	*Cryptochironomus* sp.	6	4	13	5	11	7.8	167.7	0.05
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	16	14	53	188	35	61.2	1316.1	0.39
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	16	177	8	273	97	114.2	2455.9	0.73
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	0	40	240	20	41	68.2	1466.7	0.44
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	110	249	311	263	177	222	4774.2	1.43
040	*Pseudochironomus* sp.	0	0	1	1	2	0.8	17.2	0.01
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE AW5 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	4852	5494	9172	3688	3124	5266	113247.3	33.83
044	*Micropsectra* sp.	40	0	0	0	0	8	172.0	0.05
045	*Paratanytarsus* sp.	54	205	145	159	92	131	2817.2	0.84
046	*Stempellinella* sp.	0	0	0	20	0	4	86.0	0.03
047	*Tanytarsus* sp.	647	371	1964	363	241	717.2	15423.7	4.61
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	40	40	60	40	36	774.2	0.23
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	20	0	4	86.0	0.03
055	*Nanocladius* sp.	40	0	0	20	0	12	258.1	0.08
056	*Psectrocladius* sp.	1	2	4	27	58	18.4	395.7	0.12
057	*Thienemanniella* sp.	80	120	120	20	80	84	1806.5	0.54
058	*Zalutschia* sp.	0	0	0	0	40	8	172.0	0.05
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	1	5	3	1	1	2.2	47.3	0.01
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	1	41	81	5	8	27.2	584.9	0.17
063	*Thienemannimyia* gp.	0	0	0	0	1	0.2	4.3	0.00
	Procladiini Tribe								
064	*Procladius* sp.	861	1073	1297	679	472	876.4	18847.3	5.63
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	1	0	0	0.2	4.3	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	1	0	0	0.2	4.3	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00
	Hydracarina								
072	*Arrenurus* sp.	1	0	1	2	0	0.8	17.2	0.01
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00

SITE AW5 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	59	3	6	4	88	32	688.2	0.21
075	*Limnochares* sp.	0	0	1	0	0	0.2	4.3	0.00
076	*Piona* spp.	1	2	3	0	0	1.2	25.8	0.01
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	200	320	80	0	0	120	2580.6	0.77
079	*Acroperus harpae*	0	0	0	20	40	12	258.1	0.08
080	*Alona affinis*	680	1321	1920	640	600	1032.2	22197.8	6.63
081	*Alona rectangula*	0	0	280	0	0	56	1204.3	0.36
082	*Chydorus sphaericus* gp.	720	600	800	0	1080	640	13763.4	4.11
083	*Eurycercus lamellatus* gp.	6	1	3	27	5	8.4	180.6	0.05
084	*Leydigia leydigi*	360	1200	760	360	400	616	13247.3	3.96
085	*Pleuroxus denticulatus*	1	40	40	0	40	24.2	520.4	0.16
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	42	160	120	40	0	72.4	1557.0	0.47
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	80	0	0	0	0	16	344.1	0.10
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	0	40	20	40	20	430.1	0.13
092	*Macrothrix laticornis*	0	0	0	0	0	0	0.0	0.00
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	402	160	280	120	80	208.4	4481.7	1.34
095	Cyclopoida	1480	1760	2081	620	1840	1556.2	33466.7	10.00
096	Harpacticoida	80	120	120	40	0	72	1548.4	0.46
	Ostracoda								
097	*Candona* sp.	120	280	121	80	80	136.2	2929.0	0.88
098	*Cyclocypris* sp.	240	360	400	240	160	280	6021.5	1.80
099	*Cypridopsis* sp.	200	0	200	220	160	156	3354.8	1.00
100	*Darwinula stevensoni*	0	40	40	20	0	20	430.1	0.13
101	*Limnocythere* sp.	160	0	40	0	40	48	1032.3	0.31
	Amphipoda								
102	*Gammarus lacustris*	3	1	0	1	4	1.8	38.7	0.01
103	*Hyalella azteca*	700	562	799	645	762	693.6	14916.1	4.46
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	40	120	200	0	160	104	2236.6	0.67
107	Tubificidae	44	43	45	3	80	43	924.7	0.28
	Hirudinea								
108	*Erpobdella punctata*	0	1	0	1	0	0.4	8.6	0.00
109	*Mooreobdella fervida*	0	0	0	1	0	0.2	4.3	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	1	0	0	1	0	0.4	8.6	0.00
113	*Piscicola milneri*	0	0	3	1	1	1	21.5	0.01

SITE AW5 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
114	**Nematoda**	1522	3402	2362	40	764	1618	34795.7	10.40
	Gastropoda								
115	*Valvata* spp.	3	3	10	5	7	5.6	120.4	0.04
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	1	0	0	0.2	4.3	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	0	0	0	0.0	0.00
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	68	120	114	80	60	88.4	1901.1	0.57
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	6	52	4	26	2	18	387.1	0.12
126	**Microturbellaria**	40	40	40	0	0	24	516.1	0.15
	Hydrozoa								
127	*Hydra* sp.	0	0	40	20	0	12	258.1	0.08
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**48**	**46**	**60**	**55**	**47**	**51.2**		
	Total Numbers	**14181**	**18605**	**24580**	**9261**	**11198**	**15565**	**334731.2**	

SITE AW6

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	2	0.4	8.6	0.00
002	*Caenis* sp.	20	9	44	10	1	16.8	361.3	0.13
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	1	0.2	4.3	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	2	0	0	0.4	8.6	0.00
010	*Mystacides* sp.	0	0	0	0	0	0	0.0	0.00
011	*Oecetis* sp.	0	0	0	0	0	0	0.0	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	0	0	1	0	1	0.4	8.6	0.00
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	1	0.2	4.3	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	12	2	40	4	5	12.6	271.0	0.10
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	0	1	1	3	0	1	21.5	0.01
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	2	1	5	6	0	2.8	60.2	0.02
027	*Cladopelma* sp.	401	50	80	50	161	148.4	3191.4	1.13
028	*Cryptochironomus* sp.	7	1	12	11	2	6.6	141.9	0.05
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	1	0	3	0	3	1.4	30.1	0.01
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	0	0	0	46	9.2	197.8	0.07
034	*Glyptotendipes* sp.	1	0	0	0	1	0.4	8.6	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	100	0	40	0	82	44.4	954.8	0.34
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	309	85	273	93	379	227.8	4898.9	1.73
040	*Pseudochironomus* sp.	0	0	0	0	0	0	0.0	0.00
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE AW6 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	4608	2400	2726	2251	760	2549	54817.2	19.37
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	2	0	2	1	1	1.2	25.8	0.01
046	*Stempellinella* sp.	100	0	40	0	80	44	946.2	0.33
047	*Tanytarsus* sp.	1012	304	401	560	121	479.6	10314.0	3.65
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	1	0	2	0.6	12.9	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	1	0	42	0	43	17.2	369.9	0.13
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	0	0	40	0	80	24	516.1	0.18
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	2	0	0	1	0	0.6	12.9	0.00
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	0	0	0.0	0.00
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	1270	664	1106	1101	1356	1099.4	23643.0	8.36
	Tanypodini Tribe								
065	*Tanypus* sp.	0	1	0	0	0	0.2	4.3	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	1	1	0	0	0.4	8.6	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	1	0	0	0.2	4.3	0.00
	Hydracarina								
072	*Arrenurus* sp.	0	0	2	0	0	0.4	8.6	0.00
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00

SITE AW6 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	12	11	2	12	2	7.8	167.7	0.06
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	1	1	0	0	0.4	8.6	0.00
077	*Neumania* sp.	2	0	1	3	0	1.2	25.8	0.01
	Cladocera								
078	*Bosmina longirostris*	0	100	40	50	0	38	817.2	0.29
079	*Acroperus harpae*	0	50	0	0	0	10	215.1	0.08
080	*Alona affinis*	2104	2600	3682	5050	1440	2975.2	63982.8	22.61
081	*Alona rectangula*	0	0	40	0	0	8	172.0	0.06
082	*Chydorus sphaericus* gp.	100	750	640	100	160	350	7526.9	2.66
083	*Eurycercus lamellatus* gp.	1	0	0	0	0	0.2	4.3	0.00
084	*Leydigia leydigi*	1403	600	1121	850	1240	1042.8	22425.8	7.93
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	0	0	80	0	0	16	344.1	0.12
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	100	0	0	120	44	946.2	0.33
092	*Macrothrix laticornis*	0	0	40	0	0	8	172.0	0.06
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	101	200	40	50	200	118.2	2541.9	0.90
095	Cyclopoida	3202	1800	2362	2201	1480	2209	47505.4	16.79
096	Harpacticoida	200	50	80	0	200	106	2279.6	0.81
	Ostracoda								
097	*Candona* sp.	201	100	120	150	120	138.2	2972.0	1.05
098	*Cyclocypris* sp.	0	0	80	0	160	48	1032.3	0.36
099	*Cypridopsis* sp.	0	0	0	0	40	8	172.0	0.06
100	*Darwinula stevensoni*	300	100	80	100	80	132	2838.7	1.00
101	*Limnocythere* sp.	0	0	0	0	40	8	172.0	0.06
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	0	0	0.0	0.00
103	*Hyalella azteca*	111	20	609	39	429	241.6	5195.7	1.84
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	0	0	2	102	0	20.8	447.3	0.16
107	Tubificidae	315	108	168	117	82	158	3397.8	1.20
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	0	2	0	0.4	8.6	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	1	0	1	0.4	8.6	0.00
112	*Helobdella stagnalis*	0	0	2	4	1	1.4	30.1	0.01
113	*Piscicola milneri*	0	1	0	0	0	0.2	4.3	0.00

SITE AW6 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean	Mean	Percent
		1	2	3	4	5	Number	SC	
114	**Nematoda**	901	552	1042	702	160	671.4	14438.7	5.10
	Gastropoda								
115	*Valvata* spp.	0	1	1	1	1	0.8	17.2	0.01
116	*Fossaria* sp.	1	0	0	0	0	0.2	4.3	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	1	0	1	0.4	8.6	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	0	1	0.2	4.3	0.00
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	244	30	42	79	78	94.6	2034.4	0.72
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	1	0	0	0.2	4.3	0.00
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	0	0	41	0	0	8.2	176.3	0.06
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**32**	**31**	**49**	**30**	**43**	**37**		
	Total Numbers	**17046**	**10693**	**15182**	**13703**	**9164**	**13157.6**	**282959.1**	

SITE BAW1

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	8	32	31	11	6	17.6	378.5	0.07
003	*Ephemera* sp.	1	0	1	0	2	0.8	17.2	0.00
004	*Leptophlebia* sp.	6	0	0	1	0	1.4	30.1	0.01
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	1	0	0	0	0	0.2	4.3	0.00
010	*Mystacides* sp.	4	1	0	0	0	1	21.5	0.00
011	*Oecetis* sp.	0	0	0	0	0	0	0.0	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	0	0	0	0	0	0	0.0	0.00
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	1	0	0	0	0.2	4.3	0.00
	Diptera								
017	*Bezzia* gp.	0	0	0	2	0	0.4	8.6	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	3	0	0	0	0	0.6	12.9	0.00
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	0	3	1	1	1	21.5	0.00
027	*Cladopelma* sp.	40	100	180	60	40	84	1806.5	0.34
028	*Cryptochironomus* sp.	18	23	55	22	59	35.4	761.3	0.14
029	*Cryptotendipes* sp.	0	20	0	1	0	4.2	90.3	0.02
030	*Dicrotendipes* sp.	20	20	20	40	60	32	688.2	0.13
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	0	0	0	0	0	0.0	0.00
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	0	20	0	0	0	4	86.0	0.02
037	*Paracladopelma* sp.	0	0	0	0	20	4	86.0	0.02
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	104	64	78	50	91	77.4	1664.5	0.31
040	*Pseudochironomus* sp.	1	0	2	0	0	0.6	12.9	0.00
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE BAW1 (continued)

Code	Taxa	Number per Sample ($0.046\ m^2$)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	640	1182	1360	602	900	936.8	20146.2	3.80
044	*Micropsectra* sp.	0	20	0	0	0	4	86.0	0.02
045	*Paratanytarsus* sp.	16	0	0	0	0	3.2	68.8	0.01
046	*Stempellinella* sp.	0	60	21	0	20	20.2	434.4	0.08
047	*Tanytarsus* sp.	422	522	602	403	780	545.8	11737.6	2.22
048	Chironominae (early instar)	0	0	0	20	0	4	86.0	0.02
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	20	20	0	0	0	8	172.0	0.03
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	20	0	0	20	0	8	172.0	0.03
056	*Psectrocladius* sp.	22	0	0	0	0	4.4	94.6	0.02
057	*Thienemanniella* sp.	20	0	0	0	0	4	86.0	0.02
058	*Zalutschia* sp.	0	0	0	0	0	0	0.0	0.00
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	1	0	1	1	0	0.6	12.9	0.00
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	1	0	0	0	0	0.2	4.3	0.00
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	168	277	460	349	338	318.4	6847.3	1.29
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	1	0	0	0	0	0.2	4.3	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00
	Hydracarina								
072	*Arrenurus* sp.	1	21	2	2	0	5.2	111.8	0.02
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00

SITE BAW1 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	4	5	4	24	11	9.6	206.5	0.04
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	1	4	5	1	1	2.4	51.6	0.01
077	*Neumania* sp.	1	1	0	3	1	1.2	25.8	0.00
	Cladocera								
078	*Bosmina longirostris*	1100	600	600	300	900	700	15053.8	2.84
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	3500	6600	5800	6900	5900	5740	123440.9	23.30
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	27600	9700	5400	3400	5900	10400	223655.9	42.22
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	200	500	300	100	600	340	7311.8	1.38
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	1703	600	500	700	1100	920.6	19797.8	3.74
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	301	0	0	0	0	60.2	1294.6	0.24
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	200	400	200	0	160	3440.9	0.65
092	*Macrothrix laticornis*	300	400	100	0	400	240	5161.3	0.97
093	*Diaphanosoma birjei*	100	0	0	0	0	20	430.1	0.08
	Copepoda								
094	Calanoida	402	280	140	80	280	236.4	5083.9	0.96
095	Cyclopoida	2480	2000	1360	2120	2400	2072	44559.1	8.41
096	Harpacticoida	440	1360	580	840	1080	860	18494.6	3.49
	Ostracoda								
097	*Candona* sp.	160	180	200	420	220	236	5075.3	0.96
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	0	0	20	0	0	4	86.0	0.02
101	*Limnocythere* sp.	160	80	380	200	120	188	4043.0	0.76
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	0	0	0.0	0.00
103	*Hyalella azteca*	161	8	3	9	6	37.4	804.3	0.15
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	48	21	20	0	20	21.8	468.8	0.09
107	Tubificidae	241	83	62	67	23	95.2	2047.3	0.39
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	0	0	0	0	0.0	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	0	0	0	0	0	0	0.0	0.00
113	*Piscicola milneri*	0	0	0	0	0	0	0.0	0.00

SITE BAW1 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
114	**Nematoda**	202	140	120	80	60	120.4	2589.2	0.49
	Gastropoda								
115	*Valvata* spp.	0	20	0	0	0	4	86.0	0.02
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	0	0	0	0.0	0.00
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	14	31	6	10	11	14.4	309.7	0.06
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	40	20	0	0	0	12	258.1	0.05
	Hydrozoa								
127	*Hydra* sp.	0	20	0	20	0	8	172.0	0.03
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**45**	**39**	**34**	**35**	**31**	**36.8**		
	Total Numbers	**40696**	**25236**	**18816**	**17059**	**21350**	**24631.4**	**529707.5**	

SITE BAW2

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	4	44	6	5	4	12.6	271.0	0.21
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	2	0	0	0	0.4	8.6	0.01
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	1	0	0	0	0	0.2	4.3	0.00
010	*Mystacides* sp.	0	0	0	0	0	0	0.0	0.00
011	*Oecetis* sp.	0	0	0	0	21	4.2	90.3	0.07
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	1	0	0	0	0	0.2	4.3	0.00
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	1	0	0.2	4.3	0.00
	Diptera								
017	*Bezzia* gp.	0	1	20	3	0	4.8	103.2	0.08
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	2	0	1	0	0	0.6	12.9	0.01
020	*Chaoborus* sp.	0	0	0	0	1	0.2	4.3	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	1	1	0	1	0	0.6	12.9	0.01
027	*Cladopelma* sp.	160	280	21	120	81	132.4	2847.3	2.22
028	*Cryptochironomus* sp.	40	14	18	25	23	24	516.1	0.40
029	*Cryptotendipes* sp.	0	0	1	1	1	0.6	12.9	0.01
030	*Dicrotendipes* sp.	20	20	20	40	21	24.2	520.4	0.41
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	20	22	2	0	0	8.8	189.2	0.15
034	*Glyptotendipes* sp.	43	1	0	0	0	8.8	189.2	0.15
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	41	60	2	0	0	20.6	443.0	0.35
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	39	95	58	50	32	54.8	1178.5	0.92
040	*Pseudochironomus* sp.	2	2	1	0	1	1.2	25.8	0.02
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE BAW2 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp	700	1061	385	485	389	604	12989.2	10.13
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	0	5	0	0	1	1.2	25.8	0.02
046	*Stempellinella* sp.	0	0	20	20	0	8	172.0	0.13
047	*Tanytarsus* sp.	480	682	193	389	194	387.6	8335.5	6.50
048	Chironominae (early instar)	0	0	0	0	40	8	172.0	0.13
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	20	4	86.0	0.07
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	4	0	1	0	0	1	21.5	0.02
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	0	0	0	0	0	0	0.0	0.00
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	1	1	2	0	0	0.8	17.2	0.01
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	0	0	0.0	0.00
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	372	757	202	262	253	369.2	7939.8	6.19
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00
	Hydracarina								
072	*Arrenurus* sp.	21	1	27	6	5	12	258.1	0.20
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00

SITE BAW2 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	10	14	20	9	12	13	279.6	0.22
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	21	1	5	46	5	15.6	335.5	0.26
077	*Neumania* sp.	0	1	3	7	8	3.8	81.7	0.06
	Cladocera								
078	*Bosmina longirostris*	120	80	40	60	40	68	1462.4	1.14
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	920	1700	1600	2100	2580	1780	38279.6	29.86
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	2320	420	300	580	540	832	17892.5	13.96
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	80	80	40	100	60	72	1548.4	1.21
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	40	0	0	100	0	28	602.2	0.47
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	20	4	86.0	0.07
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	0	0	80	60	28	602.2	0.47
092	*Macrothrix laticornis*	0	0	0	40	0	8	172.0	0.13
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	20	40	40	0	20	24	516.1	0.40
095	Cyclopoida	320	360	460	640	400	436	9376.3	7.32
096	Harpacticoida	160	340	340	940	1080	572	12301.1	9.60
	Ostracoda								
097	*Candona* sp.	120	240	122	141	104	145.4	3126.9	2.44
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	60	20	60	60	40	48	1032.3	0.81
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	0	0	0.0	0.00
103	*Hyalella azteca*	109	158	5	4	28	60.8	1307.5	1.02
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	20	0	0	0	0	4	86.0	0.07
107	Tubificidae	29	126	13	50	6	44.8	963.4	0.75
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	1	0	0	0	0	0.2	4.3	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	0	0	0	0	0	0	0.0	0.00
113	*Piscicola milneri*	0	0	0	0	0	0	0.0	0.00

SITE BAW2 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
114	**Nematoda**	40	100	1	21	40	40.4	868.8	0.68
	Gastropoda								
115	*Valvata* spp.	0	20	0	0	0	4	86.0	0.07
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	1	0	0	0	0.2	4.3	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	0	0	0	0.0	0.00
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	13	59	12	33	5	24.4	524.7	0.41
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	20	0	0	0	0	4	86.0	0.07
	Hydrozoa								
127	*Hydra* sp.	21	0	1	0	0	4.4	94.6	0.07
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**39**	**36**	**35**	**32**	**34**	**35.2**		
	Total Numbers	**6396**	**6809**	**4042**	**6419**	**6135**	**5960.2**	**128176.3**	

SITE BAW3

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	9	6	51	4	51	24.2	520.4	0.31
003	*Ephemera* sp.	1	0	0	0	0	0.2	4.3	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	0	1	0.2	4.3	0.00
010	*Mystacides* sp.	2	2	1	1	3	1.8	38.7	0.02
011	*Oecetis* sp.	1	1	2	0	0	0.8	17.2	0.01
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	0	1	4	0	2	1.4	30.1	0.02
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	20	0	0	0	4	86.0	0.05
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	1	0	3	0	2	1.2	25.8	0.02
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	1	1	1	1	0.8	17.2	0.01
027	*Cladopelma* sp.	140	120	120	180	180	148	3182.8	1.89
028	*Cryptochironomus* sp.	5	6	26	26	15	15.6	335.5	0.20
029	*Cryptotendipes* sp.	0	0	0	0	20	4	86.0	0.05
030	*Dicrotendipes* sp.	0	20	0	21	21	12.4	266.7	0.16
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	26	4	4	6	5	9	193.5	0.12
034	*Glyptotendipes* sp.	21	0	0	20	0	8.2	176.3	0.10
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	20	0	40	0	40	20	430.1	0.26
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	83	93	137	85	82	96	2064.5	1.23
040	*Pseudochironomus* sp.	0	1	3	1	0	1	21.5	0.01
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE BAW3 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	680	1521	1800	1320	1181	1300.4	27965.6	16.63
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	5	2	1	0	21	5.8	124.7	0.07
046	*Stempellinella* sp.	0	80	0	1	40	24.2	520.4	0.31
047	*Tanytarsus* sp.	180	241	300	160	461	268.4	5772.0	3.43
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	20	0	20	20	12	258.1	0.15
056	*Psectrocladius* sp.	2	0	1	0	0	0.6	12.9	0.01
057	*Thienemanniella* sp.	40	20	0	0	0	12	258.1	0.15
058	*Zalutschia* sp.	0	0	0	0	0	0	0.0	0.00
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	2	3	1	3	1	2	43.0	0.03
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	1	20	0	4.2	90.3	0.05
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	222	450	354	570	655	450.2	9681.7	5.76
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00
	Hydracarina								
072	*Arrenurus* sp.	1	0	24	0	5	6	129.0	0.08
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00

SITE BAW3 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	1	3	5	24	13	9.2	197.8	0.12
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	0	25	64	0	17.8	382.8	0.23
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	80	100	160	400	720	292	6279.6	3.73
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	200	120	200	1280	2560	872	18752.7	11.15
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	2920	1920	960	1000	2680	1896	40774.2	24.25
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	80	80	0	0	0	32	688.2	0.41
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	160	40	60	1121	1361	548.4	11793.5	7.01
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	120	24	516.1	0.31
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	20	0	0	0	4	86.0	0.05
092	*Macrothrix laticornis*	0	0	0	0	0	0	0.0	0.00
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	60	40	0	300	260	132	2838.7	1.69
095	Cyclopoida	400	620	280	660	1320	656	14107.5	8.39
096	Harpacticoida	20	120	160	100	340	148	3182.8	1.89
	Ostracoda								
097	*Candona* sp.	40	120	100	80	220	112	2408.6	1.43
098	*Cyclocypris* sp.	20	0	0	0	20	8	172.0	0.10
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	60	80	40	20	0	40	860.2	0.51
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	0	0	0.0	0.00
103	*Hyalella azteca*	201	242	171	150	89	170.6	3668.8	2.18
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	181	40	0	0	0	44.2	950.5	0.57
107	Tubificidae	64	0	86	40	40	46	989.2	0.59
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	2	0	1	2	1	1.2	25.8	0.02
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	0	1	0	0.2	4.3	0.00
112	*Helobdella stagnalis*	1	2	2	3	3	2.2	47.3	0.03
113	*Piscicola milneri*	2	1	0	0	0	0.6	12.9	0.01

SITE BAW3 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
114	**Nematoda**	160	260	240	81	80	164.2	3531.2	2.10
	Gastropoda								
115	*Valvata* spp.	4	20	21	2	3	10	215.1	0.13
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	0	0	0	0.0	0.00
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	100	90	164	56	133	108.6	2335.5	1.39
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	40	0	0	0	0	8	172.0	0.10
	Hydrozoa								
127	*Hydra* sp.	122	20	41	1	0	36.8	791.4	0.47
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**42**	**40**	**38**	**37**	**39**	**39.2**		
	Total Numbers	**6359**	**6550**	**5590**	**7824**	**12770**	**7818.6**	**168141.9**	

SITE BAW4

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	1	3	25	9	12	10	215.1	0.06
003	*Ephemera* sp.	0	1	0	1	0	0.4	8.6	0.00
004	*Leptophlebia* sp.	0	1	0	3	2	1.2	25.8	0.01
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	40	0	0	0	0	8	172.0	0.05
009	*Oxyethira* sp.	0	0	0	1	0	0.2	4.3	0.00
010	*Mystacides* sp.	4	1	0	2	0	1.4	30.1	0.01
011	*Oecetis* sp.	0	1	1	0	0	0.4	8.6	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	1	3	0	0	1	1	21.5	0.01
014	*Agrypnia* sp.	0	0	0	0	1	0.2	4.3	0.00
015	*Phryganea* sp.	1	0	0	0	0	0.2	4.3	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	1	1	0	0	0.4	8.6	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	21	0	20	0	0	8.2	176.3	0.05
020	*Chaoborus* sp.	0	1	0	0	0	0.2	4.3	0.00
021	*Hemerodromia* sp.	1	0	0	0	0	0.2	4.3	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	21	21	25	2	13.8	296.8	0.08
027	*Cladopelma* sp.	60	120	180	40	240	128	2752.7	0.73
028	*Cryptochironomus* sp.	11	8	69	12	7	21.4	460.2	0.12
029	*Cryptotendipes* sp.	20	20	40	0	0	16	344.1	0.09
030	*Dicrotendipes* sp.	0	20	40	21	20	20.2	434.4	0.11
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	3	0	0	21	1	5	107.5	0.03
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	40	0	40	40	0	24	516.1	0.14
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	88	72	90	97	207	110.8	2382.8	0.63
040	*Pseudochironomus* sp.	1	21	2	0	100	24.8	533.3	0.14
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE BAW4 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	600	980	1700	1161	1120	1112.2	23918.3	6.33
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	56	74	2	44	113	57.8	1243.0	0.33
046	*Stempellinella* sp.	0	0	60	40	0	20	430.1	0.11
047	*Tanytarsus* sp.	160	400	663	382	380	397	8537.6	2.26
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	20	0	0	0	0	4	86.0	0.02
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	20	0	0	4	86.0	0.02
056	*Psectrocladius* sp.	21	0	0	4	1	5.2	111.8	0.03
057	*Thienemanniella* sp.	220	0	0	20	80	64	1376.3	0.36
058	*Zalutschia* sp.	0	0	0	20	0	4	86.0	0.02
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	8	4	2	23	3	8	172.0	0.05
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	1	0	0	0	0	0.2	4.3	0.00
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	315	638	702	740	765	632	13591.4	3.59
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	1	0	0	0	0	0.2	4.3	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	1	0	0	3	0.8	17.2	0.00
	Hydracarina								
072	*Arrenurus* sp.	1	4	2	1	0	1.6	34.4	0.01
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00

SITE BAW4 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	0	31	9	11	0	10.2	219.4	0.06
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	1	41	1	0	8.6	184.9	0.05
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	400	520	240	560	500	444	9548.4	2.53
079	*Acroperus harpae*	0	0	0	40	100	28	602.2	0.16
080	*Alona affinis*	1200	1560	3160	2284	2100	2060.8	44318.3	11.72
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	16200	3160	1880	10320	15000	9312	200258.1	52.96
083	*Eurycercus lamellatus* gp.	0	0	0	0	106	21.2	455.9	0.12
084	*Leydigia leydigi*	500	280	440	240	100	312	6709.7	1.77
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	40	0	8	172.0	0.05
087	*Daphnia galeata mendotae*	500	561	440	600	1000	620.2	13337.6	3.53
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	40	0	120	200	72	1548.4	0.41
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	0	80	0	0	16	344.1	0.09
092	*Macrothrix laticornis*	0	40	40	0	0	16	344.1	0.09
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	120	320	160	140	120	172	3698.9	0.98
095	Cyclopoida	560	820	1380	600	920	856	18408.6	4.87
096	Harpacticoida	0	100	400	382	180	212.4	4567.7	1.21
	Ostracoda								
097	*Candona* sp.	20	120	282	240	261	184.6	3969.9	1.05
098	*Cyclocypris* sp.	0	0	0	20	40	12	258.1	0.07
099	*Cypridopsis* sp.	0	0	0	0	60	12	258.1	0.07
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	40	20	60	40	20	36	774.2	0.20
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	0	0	0.0	0.00
103	*Hyalella azteca*	177	71	73	240	250	162.2	3488.2	0.92
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	121	0	0	20	40	36.2	778.5	0.21
107	Tubificidae	24	60	60	0	0	28.8	619.4	0.16
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	1	0	0	0	0	0.2	4.3	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	0	0	0	0	1	0.2	4.3	0.00
113	*Piscicola milneri*	0	1	0	1	2	0.8	17.2	0.00

SITE BAW4 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
114	**Nematoda**	60	60	80	160	120	96	2064.5	0.55
	Gastropoda								
115	*Valvata* spp.	42	0	0	43	20	21	451.6	0.12
116	*Fossaria* sp.	0	1	0	1	0	0.4	8.6	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	1	0	0.2	4.3	0.00
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	42	140	208	45	61	99.2	2133.3	0.56
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	20	0	20	40	0	16	344.1	0.09
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**42**	**42**	**39**	**47**	**41**	**42.2**		
	Total Numbers	**21722**	**10301**	**12733**	**18896**	**24259**	**17582.2**	**378111.8**	

SITE BAW5

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	20	0	4	86.0	0.04
002	*Caenis* sp.	51	8	13	1	4	15.4	331.2	0.15
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	1	0	22	3	3	5.8	124.7	0.06
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	1	0	0.2	4.3	0.00
010	*Mystacides* sp.	0	0	0	1	0	0.2	4.3	0.00
011	*Oecetis* sp.	0	0	0	0	0	0	0.0	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	1	0	0	0	1	0.4	8.6	0.00
014	*Agrypnia* sp.	1	0	0	1	0	0.4	8.6	0.00
015	*Phryganea* sp.	1	0	0	0	0	0.2	4.3	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	1	1	21	1	4.8	103.2	0.05
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	0	0	0	0	0	0	0.0	0.00
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	1	0.2	4.3	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	0	4	0	1	1	21.5	0.01
027	*Cladopelma* sp.	61	40	40	60	0	40.2	864.5	0.39
028	*Cryptochironomus* sp.	48	20	41	30	14	30.6	658.1	0.30
029	*Cryptotendipes* sp.	0	0	0	20	0	4	86.0	0.04
030	*Dicrotendipes* sp.	21	40	3	43	60	33.4	718.3	0.33
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	1	1	2	1	0	1	21.5	0.01
034	*Glyptotendipes* sp.	1	0	20	1	20	8.4	180.6	0.08
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	41	0	0	80	40	32.2	692.5	0.31
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	109	74	90	77	115	93	2000.0	0.91
040	*Pseudochironomus* sp.	0	1	0	0	0	0.2	4.3	0.00
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE BAW5 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	831	522	1161	1185	1280	995.8	21415.1	9.69
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	36	2	212	131	71	90.4	1944.1	0.88
046	*Stempellinella* sp.	0	80	60	0	0	28	602.2	0.27
047	*Tanytarsus* sp.	121	264	281	120	260	209.2	4498.9	2.04
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	20	0	20	0	0	8	172.0	0.08
051	*Cricotopus* sp.	0	0	20	0	0	4	86.0	0.04
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	0	2	4	0	1.2	25.8	0.01
057	*Thienemanniella* sp.	0	0	1	60	0	12.2	262.4	0.12
058	*Zalutschia* sp.	0	0	40	20	0	12	258.1	0.12
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	3	1	3	1	0	1.6	34.4	0.02
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	21	20	8.2	176.3	0.08
063	*Thienemannimyia* gp.	0	0	0	20	0	4	86.0	0.04
	Procladiini Tribe								
064	*Procladius* sp.	273	339	261	467	262	320.4	6890.3	3.12
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	1	0	0	0.2	4.3	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	1	0	0	0.2	4.3	0.00
	Hydracarina								
072	*Arrenurus* sp.	3	1	1	0	2	1.4	30.1	0.01
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00

SITE BAW5 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	7	3	4	0	0	2.8	60.2	0.03
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	20	0	0	0	2	4.4	94.6	0.04
077	*Neumania* sp.	0	1	1	0	0	0.4	8.6	0.00
	Cladocera								
078	*Bosmina longirostris*	360	1320	600	40	120	488	10494.6	4.75
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	922	1002	1400	680	1120	1024.8	22038.7	9.98
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	2720	1440	2680	3000	4200	2808	60387.1	27.34
083	*Eurycercus lamellatus* gp.	0	0	0	1	0	0.2	4.3	0.00
084	*Leydigia leydigi*	282	564	400	680	560	497.2	10692.5	4.84
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	801	961	1162	200	40	632.8	13608.6	6.16
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	40	120	0	0	32	688.2	0.31
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	40	80	80	0	40	860.2	0.39
092	*Macrothrix laticornis*	0	40	0	40	0	16	344.1	0.16
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	201	320	320	20	100	192.2	4133.3	1.87
095	Cyclopoida	1460	2201	1261	1080	1940	1588.4	34159.1	15.46
096	Harpacticoida	20	60	200	40	0	64	1376.3	0.62
	Ostracoda								
097	*Candona* sp.	81	81	120	61	21	72.8	1565.6	0.71
098	*Cyclocypris* sp.	40	0	40	40	0	24	516.1	0.23
099	*Cypridopsis* sp.	0	20	100	0	0	24	516.1	0.23
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	20	0	0	0	0	4	86.0	0.04
	Amphipoda								
102	*Gammarus lacustris*	1	0	4	3	0	1.6	34.4	0.02
103	*Hyalella azteca*	235	161	333	527	338	318.8	6855.9	3.10
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	21	0	60	61	20	32.4	696.8	0.32
107	Tubificidae	187	84	182	243	48	148.8	3200.0	1.45
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	5	4	2	2.2	47.3	0.02
110	*Nephelopsus obscura*	0	1	0	1	0	0.4	8.6	0.00
111	*Glossiphonia complanata*	3	0	0	2	0	1	21.5	0.01
112	*Helobdella stagnalis*	4	1	7	9	4	5	107.5	0.05
113	*Piscicola milneri*	0	0	1	2	0	0.6	12.9	0.01

SITE BAW5 (concluded)

Code	Taxa	Number per Sample (0.046 m²)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
114	**Nematoda**	104	100	60	228	100	118.4	2546.2	1.15
	Gastropoda								
115	*Valvata* spp.	46	9	102	93	19	53.8	1157.0	0.52
116	*Fossaria* sp.	0	1	1	0	1	0.6	12.9	0.01
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	1	0	0.2	4.3	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	1	0	0	0	0	0.2	4.3	0.00
121	*Helisoma* sp.	0	0	1	0	0	0.2	4.3	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	63	85	97	98	93	87.2	1875.3	0.85
124	*Sphaerium (Musculium)* sp.	0	0	1	0	0	0.2	4.3	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	1	20	40	0	0	12.2	262.4	0.12
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**43**	**39**	**53**	**51**	**35**	**44.2**		
	Total Numbers	**9224**	**9949**	**11682**	**9623**	**10883**	**10272.2**	**220907.5**	

SITE BAW6

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	1	8	4	5	4	4.4	94.6	0.05
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	2	0.4	8.6	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	0	0	0	0	3	0.6	12.9	0.01
011	*Oecetis* sp.	0	1	1	1	0	0.6	12.9	0.01
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	0	0	1	0	1	0.4	8.6	0.00
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	20	1	0	4.2	90.3	0.05
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	0	0	0	0	1	0.2	4.3	0.00
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	5	3	4	4	3	3.8	81.7	0.04
027	*Cladopelma* sp.	0	101	80	142	60	76.6	1647.3	0.83
028	*Cryptochironomus* sp.	37	40	33	56	34	40	860.2	0.43
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	2	1	0	0	25	5.6	120.4	0.06
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	1	0	0	1	0.4	8.6	0.00
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	21	41	100	102	40	60.8	1307.5	0.66
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	148	50	127	96	70	98.2	2111.8	1.06
040	*Pseudochironomus* sp.	0	0	0	0	1	0.2	4.3	0.00
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE BAW6 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	525	829	480	776	440	610	13118.3	6.58
044	*Micropsectra* sp.	0	0	0	20	0	4	86.0	0.04
045	*Paratanytarsus* sp.	54	13	33	9	116	45	967.7	0.49
046	*Stempellinella* sp.	0	40	1	20	0	12.2	262.4	0.13
047	*Tanytarsus* sp.	186	348	181	483	303	300.2	6455.9	3.24
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	20	0	0	0	20	8	172.0	0.09
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	20	4	86.0	0.04
056	*Psectrocladius* sp.	0	0	0	1	3	0.8	17.2	0.01
057	*Thienemanniella* sp.	61	0	0	20	60	28.2	606.5	0.30
058	*Zalutschia* sp.	0	0	0	0	0	0	0.0	0.00
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	0	1	2	0	1	0.8	17.2	0.01
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	2	1	0	1	1	1	21.5	0.01
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	611	458	384	389	478	464	9978.5	5.01
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	2	2	1	1	21.5	0.01
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
070	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00
	Hydracarina								
072	*Arrenurus* sp.	1	0	1	0	0	0.4	8.6	0.00
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00

SITE BAW6 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	5	10	1	4	0	4	86.0	0.04
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	2	1	0	20	0	4.6	98.9	0.05
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	280	160	260	400	400	300	6451.6	3.24
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	600	2240	1900	1960	1680	1676	36043.0	18.08
081	*Alona rectangula*	0	0	0	40	0	8	172.0	0.09
082	*Chydorus sphaericus* gp.	1140	560	840	1720	4920	1836	39483.9	19.81
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	280	600	240	720	320	432	9290.3	4.66
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	20	80	100	40	40	56	1204.3	0.60
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	20	0	0	4	86.0	0.04
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	0	0	40	0	8	172.0	0.09
092	*Macrothrix laticornis*	0	120	40	80	40	56	1204.3	0.60
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	20	20	80	100	0	44	946.2	0.47
095	Cyclopoida	920	2140	2440	2400	2120	2004	43096.8	21.62
096	Harpacticoida	300	660	440	480	260	428	9204.3	4.62
	Ostracoda								
097	*Candona* sp.	40	183	121	160	41	109	2344.1	1.18
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	20	0	0	0	20	8	172.0	0.09
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	60	100	80	120	60	84	1806.5	0.91
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	1	0	0.2	4.3	0.00
103	*Hyalella azteca*	137	56	56	166	107	104.4	2245.2	1.13
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	0	0	0	100	60	32	688.2	0.35
107	Tubificidae	6	126	42	101	102	75.4	1621.5	0.81
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	1	0	3	0.8	17.2	0.01
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	2	6	2	3	7	4	86.0	0.04
113	*Piscicola milneri*	0	0	1	0	0	0.2	4.3	0.00

SITE BAW6 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
114	**Nematoda**	60	102	121	181	201	133	2860.2	1.43
	Gastropoda								
115	*Valvata* spp.	11	9	32	2	16	14	301.1	0.15
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	0	0	0	0.0	0.00
121	*Helisoma* sp.	0	1	0	1	1	0.6	12.9	0.01
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	39	68	51	65	47	54	1161.3	0.58
124	*Sphaerium (Musculium)* sp.	0	1	0	1	0	0.4	8.6	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	20	21	0	1	20	12.4	266.7	0.13
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**34**	**38**	**38**	**44**	**45**	**39.8**		
	Total Numbers	**5636**	**9200**	**8322**	**11034**	**12153**	**9269**	**199333.3**	

Appendix D-3. Benthic invertebrate species identifications and numbers per sample (per 0.046 m^2), mean number (per 0.046 m^2), mean standing crop (SC) (number/m^2) and percent of total for the Wabamun Lake Water Treatment Plant Area, November 2002.

SITE WDC

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	3	11	1	0	51	13.2	283.9	0.14
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	1	0	0	0	0.2	4.3	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	1	0	6	0	1.4	30.1	0.02
008	*Hydroptila* sp.	5	1	25	37	1	13.8	296.8	0.15
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	8	7	7	12	2	7.2	154.8	0.08
011	*Oecetis* sp.	1	1	0	0	2	0.8	17.2	0.01
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	0	0	0	0	0	0	0.0	0.00
014	*Agrypnia* sp.	1	1	1	1	0	0.8	17.2	0.01
015	*Phryganea* sp.	0	0	0	0	1	0.2	4.3	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	60	113	5	7	54	47.8	1028.0	0.52
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	1	2	0	0	0	0.6	12.9	0.01
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	42	18	36	128	228	90.4	1944.1	0.99
027	*Cladopelma* sp.	0	0	0	0	0	0	0.0	0.00
028	*Cryptochironomus* sp.	5	2	0	0	0	1.4	30.1	0.02
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	103	5	4	207	51	74	1591.4	0.81
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	3	0	3	1026	1293	465	10000.0	5.08
033	*Endochironomus* sp.	0	0	0	0	0	0	0.0	0.00
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00

SITE WDC (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
036	*Parachironomus* sp.	0	0	0	0	0	0	0.0	0.00
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	350	101	300	100	0	170.2	3660.2	1.86
040	*Pseudochironomus* sp.	0	1	0	0	0	0.2	4.3	0.00
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	0	200	100	0	0	60	1290.3	0.65
044	*Micropsectra* sp.	1	102	0	101	101	61	1311.8	0.67
045	*Paratanytarsus* sp.	1	0	100	1	0	20.4	438.7	0.22
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	50	300	200	0	50	120	2580.6	1.31
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	1	0	0	0	0	0.2	4.3	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	50	10	215.1	0.11
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	5	2	2	0	1.8	38.7	0.02
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	0	0	0	0	0	0	0.0	0.00
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	0	1	0	0	0	0.2	4.3	0.00
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	50	0	100	1	0	30.2	649.5	0.33
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	362	211	318	728	156	355	7634.4	3.87
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	1	0	0	0	0.2	4.3	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00

SITE WDC (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00
	Hydracarina								
072	*Arrenurus* sp.	0	1	0	0	0	0.2	4.3	0.00
073	*Hydrodroma* sp.	0	0	1	0	1	0.4	8.6	0.00
074	*Limnesia* sp.	0	1	100	0	1	20.4	438.7	0.22
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	0	0	0	0	0	0.0	0.00
077	*Neumania* sp.	50	0	0	0	0	10	215.1	0.11
	Cladocera								
078	*Bosmina longirostris*	0	0	0	0	0	0	0.0	0.00
079	*Acroperus harpae*	0	0	100	200	50	70	1505.4	0.76
080	*Alona affinis*	50	0	0	0	100	30	645.2	0.33
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	50	100	300	100	0	110	2365.6	1.20
083	*Eurycercus lamellatus* gp.	0	1	1	201	51	50.8	1092.5	0.55
084	*Leydigia leydigi*	0	0	100	100	0	40	860.2	0.44
085	*Pleuroxus denticulatus*	50	0	0	0	0	10	215.1	0.11
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	0	0	0	0	0	0	0.0	0.00
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	0	0	0	0	0	0.0	0.00
092	*Macrothrix laticornis*	0	0	0	0	0	0	0.0	0.00
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	0	0	0	0	0	0	0.0	0.00
095	Cyclopoida	150	400	1500	900	400	670	14408.6	7.31
096	Harpacticoida	0	900	700	300	450	470	10107.5	5.13
	Ostracoda								
097	*Candona* sp.	0	100	300	200	100	140	3010.8	1.53
098	*Cyclocypris* sp.	450	1300	1101	1800	1600	1250.2	26886.0	13.65
099	*Cypridopsis* sp.	250	600	100	800	50	360	7741.9	3.93
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	0	200	0	0	0	40	860.2	0.44
	Amphipoda								
102	*Gammarus lacustris*	1	0	0	0	0	0.2	4.3	0.00
103	*Hyalella azteca*	289	69	439	80	27	180.8	3888.2	1.97
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	1157	1001	1507	302	450	883.4	18997.8	9.64
107	Tubificidae	19	69	3	12	0	20.6	443.0	0.22
	Hirudinea								
108	*Erpobdella punctata*	1	0	0	1	0	0.4	8.6	0.00

SITE WDC (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
109	*Mooreobdella fervida*	0	0	1	1	0	0.4	8.6	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	1	0	1	1	1	0.8	17.2	0.01
112	*Helobdella stagnalis*	0	0	0	0	0	0	0.0	0.00
113	*Piscicola milneri*	0	0	0	0	0	0	0.0	0.00
114	**Nematoda**	2852	4302	3500	2000	1701	2871	61741.9	31.34
	Gastropoda								
115	*Valvata* spp.	145	510	101	301	194	250.2	5380.6	2.73
116	*Fossaria* sp.	4	4	0	0	1	1.8	38.7	0.02
117	*Lymnaea stagnalis*	1	0	1	0	0	0.4	8.6	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	4	3	9	4	4	4.8	103.2	0.05
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	9	6	132	110	6	52.6	1131.2	0.57
	Pelecypoda								
123	*Pisidium* sp.	12	11	129	36	66	50.8	1092.5	0.55
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	3	2	105	12	5	25.4	546.2	0.28
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	0	0	0	0	0	0	0.0	0.00
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**39**	**41**	**38**	**35**	**33**	**37.2**		
	Total Numbers	**6595**	**10665**	**11433**	**9818**	**7298**	**9161.8**	**197028.0**	

SITE WW1

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	1	0	1	0	3	1	21.5	0.01
002	*Caenis* sp.	42	43	44	46	4	35.8	769.9	0.48
003	*Ephemera* sp.	0	1	0	1	0	0.4	8.6	0.01
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	0	0	0	0	0	0	0.0	0.00
011	*Oecetis* sp.	0	0	0	0	0	0	0.0	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	8	1	7	2	5	4.6	98.9	0.06
014	*Agrypnia* sp.	1	2	0	0	0	0.6	12.9	0.01
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	0	0	0	0	0.0	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	40	82	48	167	8	69	1483.9	0.93
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	0	0	0	0	0	0.0	0.00
027	*Cladopelma* sp.	0	0	0	81	0	16.2	348.4	0.22
028	*Cryptochironomus* sp.	0	0	0	3	0	0.6	12.9	0.01
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	40	40	41	0	82	40.6	873.1	0.55
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	7	13	16	42	5	16.6	357.0	0.22
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	40	160	120	40	40	80	1720.4	1.08
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	40	0	0	0	1	8.2	176.3	0.11
040	*Pseudochironomus* sp.	0	0	0	0	0	0	0.0	0.00
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	4	2	0	0	0	1.2	25.8	0.02

SITE WW1 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	201	0	0	600	400	240.2	5165.6	3.25
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	2	41	85	1	40	33.8	726.9	0.46
046	*Stempellinella* sp.	0	0	0	0	40	8	172.0	0.11
047	*Tanytarsus* sp.	0	0	40	280	0	64	1376.3	0.87
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	1	0	0	0	0	0.2	4.3	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	0	1	0	0	0.2	4.3	0.00
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	0	40	40	0	40	24	516.1	0.32
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	11	2	10	2	4	5.8	124.7	0.08
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	0	0	0.0	0.00
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	128	42	15	129	142	91.2	1961.3	1.23
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	1	2	1	0	4	1.6	34.4	0.02
	Hydracarina								
072	*Arrenurus* sp.	0	0	0	0	0	0	0.0	0.00
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00

SITE WW1 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	1	0	0	2	0	0.6	12.9	0.01
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	0	0	0	0	0	0.0	0.00
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	80	0	40	40	40	40	860.2	0.54
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	0	0	0	0	120	24	516.1	0.32
081	*Alona rectangula*	0	0	0	0	40	8	172.0	0.11
082	*Chydorus sphaericus* gp.	2640	1520	1520	1560	8160	3080	66236.6	41.63
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	0	40	0	0	0	8	172.0	0.11
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	0	0	0	40	0	8	172.0	0.11
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	40	0	40	0	16	344.1	0.22
092	*Macrothrix laticornis*	0	0	80	0	80	32	688.2	0.43
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	80	40	0	40	0	32	688.2	0.43
095	Cyclopoida	560	360	1040	280	1160	680	14623.7	9.19
096	Harpacticoida	80	80	240	80	280	152	3268.8	2.05
	Ostracoda								
097	*Candona* sp.	40	0	0	40	0	16	344.1	0.22
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	0	0	0	0	40	8	172.0	0.11
100	*Darwinula stevensoni*	0	0	0	40	40	16	344.1	0.22
101	*Limnocythere* sp.	0	0	0	0	0	0	0.0	0.00
	Amphipoda								
102	*Gammarus lacustris*	5	16	24	8	11	12.8	275.3	0.17
103	*Hyalella azteca*	432	158	238	149	394	274.2	5896.8	3.71
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	40	0	160	0	40	48	1032.3	0.65
107	Tubificidae	439	537	598	172	1027	554.6	11926.9	7.50
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	1	0	0	2	0	0.6	12.9	0.01
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	1	0	1	5	1	1.6	34.4	0.02
113	*Piscicola milneri*	1	1	1	1	2	1.2	25.8	0.02

SITE WW1 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
114	**Nematoda**	1440	2080	1203	800	1360	1376.6	29604.3	18.61
	Gastropoda								
115	*Valvata* spp.	0	0	0	0	2	0.4	8.6	0.01
116	*Fossaria* sp.	0	0	0	1	1	0.4	8.6	0.01
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	40	40	40	0	24	516.1	0.32
121	*Helisoma* sp.	0	0	0	0	2	0.4	8.6	0.01
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	153	307	285	48	41	166.8	3587.1	2.25
124	*Sphaerium (Musculium)* sp.	0	1	0	0	0	0.2	4.3	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	80	80	0	40	160	72	1548.4	0.97
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**33**	**29**	**28**	**34**	**36**	**32**		
	Total Numbers	**6640**	**5771**	**5939**	**4822**	**13819**	**7398.2**	**159101.1**	

SITE WW2

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	1	2	1	0	1	1	21.5	0.01
002	*Caenis* sp.	44	0	44	81	3	34.4	739.8	0.48
003	*Ephemera* sp.	1	3	4	2	2	2.4	51.6	0.03
004	*Leptophlebia* sp.	0	1	1	0	1	0.6	12.9	0.01
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	40	0	0	0	8	172.0	0.11
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	0	2	1	1	2	1.2	25.8	0.02
011	*Oecetis* sp.	0	0	0	0	0	0	0.0	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	4	4	3	3	2	3.2	68.8	0.04
014	*Agrypnia* sp.	1	1	1	0	2	1	21.5	0.01
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	0	0	0	0	0.0	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	50	124	166	81	205	125.2	2692.5	1.73
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	0	0	0	0	0	0.0	0.00
027	*Cladopelma* sp.	0	0	0	0	0	0	0.0	0.00
028	*Cryptochironomus* sp.	1	0	0	0	0	0.2	4.3	0.00
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	1	0	0	1	0	0.4	8.6	0.01
031	*Demicryptochironomus* sp.	1	6	4	0	46	11.4	245.2	0.16
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	0	0	0	2	0.4	8.6	0.01
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	0	40	0	40	40	24	516.1	0.33
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	41	40	0	0	40	24.2	520.4	0.33
040	*Pseudochironomus* sp.	0	0	0	0	0	0	0.0	0.00
041	*Stictochironomus* sp.	0	2	2	0	1	1	21.5	0.01
042	*Tribelos* sp.	48	3	9	7	44	22.2	477.4	0.31

SITE WW2 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	161	120	240	40	80	128.2	2757.0	1.77
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	87	84	1	1	7	36	774.2	0.50
046	*Stempellinella* sp.	0	0	40	0	40	16	344.1	0.22
047	*Tanytarsus* sp.	80	1	0	1	0	16.4	352.7	0.23
048	Chironominae (early instar)	0	0	1	0	0	0.2	4.3	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	40	0	0	0	8	172.0	0.11
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	40	0	0	0	8	172.0	0.11
056	*Psectrocladius* sp.	0	0	0	0	0	0	0.0	0.00
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	0	0	0	0	80	16	344.1	0.22
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	3	0	0	1	4	1.6	34.4	0.02
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	40	1	8.2	176.3	0.11
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	24	91	14	134	14	55.4	1191.4	0.77
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	1	1	0.4	8.6	0.01
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	1	0	2	3	2	1.6	34.4	0.02
	Hydracarina								
072	*Arrenurus* sp.	0	0	0	0	0	0	0.0	0.00
073	*Hydrodroma* sp.	0	1	0	0	0	0.2	4.3	0.00

SITE WW2 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	0	0	0	0	0	0	0.0	0.00
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	0	0	0	0	0	0.0	0.00
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	200	0	160	120	80	112	2408.6	1.55
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	0	40	80	40	0	32	688.2	0.44
081	*Alona rectangula*	0	0	40	0	0	8	172.0	0.11
082	*Chydorus sphaericus* gp.	2520	2800	2800	1720	1000	2168	46623.7	29.97
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	0	0	0	40	0	8	172.0	0.11
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	80	0	0	0	40	24	516.1	0.33
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	80	0	0	40	24	516.1	0.33
092	*Macrothrix laticornis*	0	0	80	0	0	16	344.1	0.22
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	0	0	40	40	40	24	516.1	0.33
095	Cyclopoida	1560	1760	1000	1040	560	1184	25462.4	16.37
096	Harpacticoida	160	160	160	480	440	280	6021.5	3.87
	Ostracoda								
097	*Candona* sp.	40	0	40	80	0	32	688.2	0.44
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	0	0	0	40	0	8	172.0	0.11
	Amphipoda								
102	*Gammarus lacustris*	4	6	11	3	18	8.4	180.6	0.12
103	*Hyalella azteca*	588	383	576	291	582	484	10408.6	6.69
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	124	244	326	1	246	188.2	4047.3	2.60
107	Tubificidae	897	756	541	385	493	614.4	13212.9	8.49
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	1	0	0	0.2	4.3	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	1	0	0	0.2	4.3	0.00
112	*Helobdella stagnalis*	0	1	1	1	1	0.8	17.2	0.01
113	*Piscicola milneri*	1	1	0	0	0	0.4	8.6	0.01

SITE WW2 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	**2**	**3**	**4**	**5**			
114	**Nematoda**	888	1241	640	563	724	811.2	17445.2	11.21
	Gastropoda								
115	*Valvata* spp.	3	2	3	0	2	2	43.0	0.03
116	*Fossaria* sp.	1	1	41	0	1	8.8	189.2	0.12
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	1	0	0	0	0.2	4.3	0.00
120	*Gyraulus* sp.	40	0	0	0	0	8	172.0	0.11
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	131	92	250	144	237	170.8	3673.1	2.36
124	*Sphaerium (Musculium)* sp.	0	0	0	0	3	0.6	12.9	0.01
	Turbellaria								
125	*Dugesia tigrina*	1	0	0	0	0	0.2	4.3	0.00
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	0	121	0	81	248	90	1935.5	1.24
128	**Tardigrada**	360	280	480	200	520	368	7914.0	5.09
	Total Taxa	**35**	**38**	**38**	**34**	**42**	**37.4**		
	Total Numbers	**8147**	**8614**	**7805**	**5706**	**5895**	**7233.4**	**155557.0**	

SITE WW3

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	1	0.2	4.3	0.00
002	*Caenis* sp.	1	1	2	2	15	4.2	90.3	0.09
003	*Ephemera* sp.	0	1	0	0	0	0.2	4.3	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	0	0	1	0	1	0.4	8.6	0.01
011	*Oecetis* sp.	0	0	1	1	0	0.4	8.6	0.01
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	3	3	3	2	0	2.2	47.3	0.05
014	*Agrypnia* sp.	0	0	0	1	0	0.2	4.3	0.00
015	*Phryganea* sp.	0	0	0	0	1	0.2	4.3	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	0	0	0	0	0.0	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	42	25	168	125	168	105.6	2271.0	2.18
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	0	1	0	1	0.4	8.6	0.01
027	*Cladopelma* sp.	0	40	40	20	160	52	1118.3	1.07
028	*Cryptochironomus* sp.	0	0	0	2	6	1.6	34.4	0.03
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	0	20	0	0	0	4	86.0	0.08
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	1	1	41	0	2	9	193.5	0.19
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	40	40	40	0	40	32	688.2	0.66
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	40	20	0	1	92	30.6	658.1	0.63
040	*Pseudochironomus* sp.	0	0	1	0	2	0.6	12.9	0.01
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	5	2	0	8	5	4	86.0	0.08

SITE WW3 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	200	160	360	180	720	324	6967.7	6.70
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	1	20	0	1	1	4.6	98.9	0.10
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	0	60	40	80	641	164.2	3531.2	3.39
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	1	0	0	0.2	4.3	0.00
056	*Psectrocladius* sp.	0	0	40	0	0	8	172.0	0.17
057	*Thienemanniella* sp.	0	0	0	20	0	4	86.0	0.08
058	*Zalutschia* sp.	40	0	0	0	40	16	344.1	0.33
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	160	4	6	25	4	39.8	855.9	0.82
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	0	0	0.0	0.00
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	131	190	629	226	448	324.8	6984.9	6.71
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	1	0	0	0.2	4.3	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	1	0	0.2	4.3	0.00
	Hydracarina								
072	*Arrenurus* sp.	0	0	0	0	0	0	0.0	0.00
073	*Hydrodroma* sp.	0	0	1	0	0	0.2	4.3	0.00

SITE WW3 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
074	*Limnesia* sp.	0	0	1	0	2	0.6	12.9	0.01
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	0	0	0	0	0	0.0	0.00
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	240	100	160	120	40	132	2838.7	2.73
079	*Acroperus harpae*	40	0	0	0	0	8	172.0	0.17
080	*Alona affinis*	0	20	0	0	0	4	86.0	0.08
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	320	340	1200	420	2280	912	19612.9	18.85
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	0	0	0	0	80	16	344.1	0.33
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	80	20	0	20	0	24	516.1	0.50
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	0	0	0	40	8	172.0	0.17
092	*Macrothrix laticornis*	0	0	0	0	80	16	344.1	0.33
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	0	0	0	0	40	8	172.0	0.17
095	Cyclopoida	120	200	520	180	1360	476	10236.6	9.84
096	Harpacticoida	200	180	40	80	320	164	3526.9	3.39
	Ostracoda								
097	*Candona* sp.	120	20	0	40	40	44	946.2	0.91
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	40	20	0	0	0	12	258.1	0.25
101	*Limnocythere* sp.	0	0	0	0	0	0	0.0	0.00
	Amphipoda								
102	*Gammarus lacustris*	0	1	0	0	0	0.2	4.3	0.00
103	*Hyalella azteca*	162	184	339	132	172	197.8	4253.8	4.09
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	164	46	80	0	81	74.2	1595.7	1.53
107	Tubificidae	1406	427	962	644	940	875.8	18834.4	18.10
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	1	1	0	0	0.4	8.6	0.01
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	2	3	0	4	1	2	43.0	0.04
113	*Piscicola milneri*	0	3	0	0	7	2	43.0	0.04

SITE WW3 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
114	**Nematoda**	640	521	401	721	523	561.2	12068.8	11.60
	Gastropoda								
115	*Valvata* spp.	0	0	0	0	0	0	0.0	0.00
116	*Fossaria* sp.	0	0	0	21	0	4.2	90.3	0.09
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	1	41	0	8.4	180.6	0.17
121	*Helisoma* sp.	0	0	1	0	0	0.2	4.3	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	44	72	178	68	68	86	1849.5	1.78
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	20	40	12	258.1	0.25
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	0	0	40	0	160	40	860.2	0.83
128	**Tardigrada**	0	0	0	0	80	16	344.1	0.33
	Total Taxa	**26**	**32**	**32**	**30**	**39**	**31.8**		
	Total Numbers	**4242**	**2745**	**5300**	**3206**	**8702**	**4839**	**104064.5**	

SITE WW4

Code	Taxa	Number per Sample (0.046 m^2) 1	2	3	4	5	Mean Number	Mean SC	Percent
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	3	1	0	0	0	0.8	17.2	0.01
003	*Ephemera* sp.	1	1	1	1	0	0.8	17.2	0.01
004	*Leptophlebia* sp.	1	0	0	0	0	0.2	4.3	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	5	1	4	0	2	2.4	51.6	0.02
011	*Oecetis* sp.	1	0	0	1	0	0.4	8.6	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	1	4	1	4	4	2.8	60.2	0.02
014	*Agrypnia* sp.	4	0	2	0	1	1.4	30.1	0.01
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	1	0	2	0	1	0.8	17.2	0.01
	Diptera								
017	*Bezzia* gp.	0	0	0	0	0	0	0.0	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	88	160	7	2	2	51.8	1114.0	0.43
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	2	1	0	0	0.6	12.9	0.00
027	*Cladopelma* sp.	0	0	0	0	0	0	0.0	0.00
028	*Cryptochironomus* sp.	0	0	0	1	0	0.2	4.3	0.00
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	0	2	1	1	0	0.8	17.2	0.01
031	*Demicryptochironomus* sp.	1	3	2	1	0	1.4	30.1	0.01
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	3	2	1	0	1	1.4	30.1	0.01
034	*Glyptotendipes* sp.	40	0	0	0	0	8	172.0	0.07
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	80	40	0	0	0	24	516.1	0.20
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	0	0	41	0	41	16.4	352.7	0.13
040	*Pseudochironomus* sp.	1	2	1	0	1	1	21.5	0.01
041	*Stictochironomus* sp.	0	0	2	1	0	0.6	12.9	0.00
042	*Tribelos* sp.	11	5	6	1	84	21.4	460.2	0.18

SITE WW4 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	123	321	201	200	121	193.2	4154.8	1.59
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	90	4	90	0	2	37.2	800.0	0.31
046	*Stempellinella* sp.	0	0	0	0	40	8	172.0	0.07
047	*Tanytarsus* sp.	0	160	80	80	120	88	1892.5	0.72
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	1	0	2	1	0.8	17.2	0.01
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	40	0	0	0	40	16	344.1	0.13
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	0	1	0	0	0.2	4.3	0.00
057	*Thienemanniella* sp.	0	40	0	0	0	8	172.0	0.07
058	*Zalutschia* sp.	40	0	2	0	40	16.4	352.7	0.13
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	2	0	0	3	1	1.2	25.8	0.01
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	41	81	40	40	0	40.4	868.8	0.33
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	61	53	236	45	1	79.2	1703.2	0.65
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	1	0	0	0	0	0.2	4.3	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	2	0	0	0	0	0.4	8.6	0.00

SITE WW4 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Hydracarina								
072	*Arrenurus* sp.	0	1	0	0	0	0.2	4.3	0.00
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00
074	*Limnesia* sp.	0	0	0	2	0	0.4	8.6	0.00
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	0	0	0	0	0	0.0	0.00
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	120	160	240	240	160	184	3957.0	1.51
079	*Acroperus harpae*	80	0	0	0	0	16	344.1	0.13
080	*Alona affinis*	80	0	80	200	80	88	1892.5	0.72
081	*Alona rectangula*	0	0	40	0	40	16	344.1	0.13
082	*Chydorus sphaericus* gp.	4000	4760	3400	2320	5440	3984	85677.4	32.76
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	0	40	0	0	0	8	172.0	0.07
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	160	280	200	80	160	176	3784.9	1.45
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	0	0	40	0	8	172.0	0.07
092	*Macrothrix laticornis*	0	40	0	0	40	16	344.1	0.13
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	200	240	160	240	120	192	4129.0	1.58
095	Cyclopoida	1200	960	960	1241	1160	1104.2	23746.2	9.08
096	Harpacticoida	120	160	480	120	160	208	4473.1	1.71
	Ostracoda								
097	*Candona* sp.	0	40	80	80	80	56	1204.3	0.46
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	0	0	120	40	0	32	688.2	0.26
	Amphipoda								
102	*Gammarus lacustris*	24	12	6	4	11	11.4	245.2	0.09
103	*Hyalella azteca*	628	444	668	636	583	591.8	12726.9	4.87
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	43	200	161	160	40	120.8	2597.8	0.99
107	Tubificidae	332	282	209	243	421	297.4	6395.7	2.45
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	1	0.2	4.3	0.00
109	*Mooreobdella fervida*	0	0	1	0	1	0.4	8.6	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00

SITE WW4 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
111	*Glossiphonia complanata*	0	0	1	0	0	0.2	4.3	0.00
112	*Helobdella stagnalis*	0	1	0	0	1	0.4	8.6	0.00
113	*Piscicola milneri*	4	1	1	2	2	2	43.0	0.02
114	**Nematoda**	4242	3161	3362	2963	3840	3513.6	75561.3	28.90
	Gastropoda								
115	*Valvata* spp.	2	0	1	1	0	0.8	17.2	0.01
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	0	0	0	0.0	0.00
121	*Helisoma* sp.	0	1	0	0	1	0.4	8.6	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	103	245	144	186	723	280.2	6025.8	2.30
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	10	9	10	0	2	6.2	133.3	0.05
126	**Microturbellaria**	40	80	0	80	0	40	860.2	0.33
	Hydrozoa								
127	*Hydra* sp.	165	602	1087	440	200	498.8	10726.9	4.10
128	**Tardigrada**	40	40	160	120	40	80	1720.4	0.66
	Total Taxa	**44**	**42**	**44**	**37**	**42**	**41.8**		
	Total Numbers	**12234**	**12642**	**12293**	**9821**	**13809**	**12159.8**	**261501.1**	

SITE WW5

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	2	0	0.4	8.6	0.00
002	*Caenis* sp.	2	0	1	0	0	0.6	12.9	0.01
003	*Ephemera* sp.	1	0	0	0	0	0.2	4.3	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	0	2	1	4	4	2.2	47.3	0.02
011	*Oecetis* sp.	1	0	0	0	0	0.2	4.3	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	6	3	4	5	3	4.2	90.3	0.04
014	*Agrypnia* sp.	1	2	1	2	1	1.4	30.1	0.01
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	0	0	0	0	0.0	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	1	40	1	3	41	17.2	369.9	0.16
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	0	0	0	0	0	0.0	0.00
027	*Cladopelma* sp.	0	0	0	0	0	0	0.0	0.00
028	*Cryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	0	80	0	2	83	33	709.7	0.30
031	*Demicryptochironomus* sp.	1	0	1	2	1	1	21.5	0.01
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	1	0	0	0	0.2	4.3	0.00
034	*Glyptotendipes* sp.	0	40	0	0	43	16.6	357.0	0.15
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	0	0	0	0	0	0	0.0	0.00
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	40	40	40	0	0	24	516.1	0.22
039	*Polypedilum* sp.	0	0	0	0	80	16	344.1	0.15
040	*Pseudochironomus* sp.	1	1	1	13	9	5	107.5	0.05
041	*Stictochironomus* sp.	43	2	1	2	0	9.6	206.5	0.09
042	*Tribelos* sp.	1	3	45	6	3	11.6	249.5	0.11

SITE WW5 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	40	40	120	201	0	80.2	1724.7	0.73
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	43	86	47	126	44	69.2	1488.2	0.63
046	*Stempellinella* sp.	0	40	40	40	0	24	516.1	0.22
047	*Tanytarsus* sp.	0	0	40	0	0	8	172.0	0.07
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	162	80	48.4	1040.9	0.44
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	0	0	0	1	0.2	4.3	0.00
057	*Thienemanniella* sp.	0	0	0	40	0	8	172.0	0.07
058	*Zalutschia* sp.	0	40	0	40	80	32	688.2	0.29
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	3	0.6	12.9	0.01
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	2	0	8	2	0	2.4	51.6	0.02
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	1	1	1	0.6	12.9	0.01
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	1	0	0	0	0.2	4.3	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	1	0	0.2	4.3	0.00

SITE WW5 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Hydracarina								
072	*Arrenurus* sp.	0	0	0	0	0	0	0.0	0.00
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00
074	*Limnesia* sp.	0	0	0	0	0	0	0.0	0.00
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	0	1	0	0	0.2	4.3	0.00
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	280	200	320	160	200	232	4989.2	2.12
079	*Acroperus harpae*	0	0	40	0	0	8	172.0	0.07
080	*Alona affinis*	40	0	40	0	40	24	516.1	0.22
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	3720	7120	10080	4240	3720	5776	124215.1	52.69
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	0	0	0	0	0	0	0.0	0.00
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	200	200	360	240	240	248	5333.3	2.26
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	40	40	0	0	16	344.1	0.15
092	*Macrothrix laticornis*	0	0	0	0	0	0	0.0	0.00
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	440	200	520	440	360	392	8430.1	3.58
095	Cyclopoida	800	560	1400	1720	960	1088	23397.8	9.92
096	Harpacticoida	160	0	200	320	80	152	3268.8	1.39
	Ostracoda								
097	*Candona* sp.	0	40	40	40	0	24	516.1	0.22
098	*Cyclocypris* sp.	0	40	0	0	0	8	172.0	0.07
099	*Cypridopsis* sp.	0	0	0	40	0	8	172.0	0.07
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	0	0	40	0	0	8	172.0	0.07
	Amphipoda								
102	*Gammarus lacustris*	8	8	5	19	1	8.2	176.3	0.07
103	*Hyalella azteca*	750	905	704	1093	528	796	17118.3	7.26
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	4	0	0	40	8.8	189.2	0.08
106	Naididae	200	200	120	280	401	240.2	5165.6	2.19
107	Tubificidae	335	166	89	375	211	235.2	5058.1	2.15
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	1	0	0	0	1	0.4	8.6	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00

SITE WW5 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	0	0	0	2	0	0.4	8.6	0.00
113	*Piscicola milneri*	0	0	3	1	0	0.8	17.2	0.01
114	**Nematoda**	1000	520	840	1120	400	776	16688.2	7.08
	Gastropoda								
115	*Valvata* spp.	0	1	0	0	1	0.4	8.6	0.00
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	1	1	0	0	0.4	8.6	0.00
119	*Armiger crista*	0	0	0	40	0	8	172.0	0.07
120	*Gyraulus* sp.	40	40	0	40	1	24.2	520.4	0.22
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	192	181	97	388	281	227.8	4898.9	2.08
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	2	2	0	4	3	2.2	47.3	0.02
126	**Microturbellaria**	40	0	40	0	0	16	344.1	0.15
	Hydrozoa								
127	*Hydra* sp.	480	80	242	40	40	176.4	3793.5	1.61
128	**Tardigrada**	40	0	120	0	40	40	860.2	0.36
	Total Taxa	**33**	**36**	**39**	**39**	**36**	**36.6**		
	Total Numbers	**8911**	**10929**	**15694**	**11256**	**8025**	**10963**	**235763.4**	

SITE WW6

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	2	3	0	6	100	22.2	477.4	0.10
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	100	20	430.1	0.09
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	0	2	0	3	0	1	21.5	0.00
011	*Oecetis* sp.	0	0	0	0	0	0	0.0	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	8	3	2	4	4	4.2	90.3	0.02
014	*Agrypnia* sp.	0	0	0	1	0	0.2	4.3	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	50	0	10	215.1	0.04
	Diptera								
017	*Bezzia* gp.	0	0	0	0	0	0	0.0	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	0	6	4	0	2	2.4	51.6	0.01
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	0	0	0	0	0	0.0	0.00
027	*Cladopelma* sp.	0	0	0	0	0	0	0.0	0.00
028	*Cryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	0	0	0	0	100	20	430.1	0.09
031	*Demicryptochironomus* sp.	0	1	0	0	4	1	21.5	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	1	0	2	0	2	1	21.5	0.00
034	*Glyptotendipes* sp.	0	0	0	1	0	0.2	4.3	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	0	0	0	100	0	20	430.1	0.09
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	0	0	0	0	0	0	0.0	0.00
040	*Pseudochironomus* sp.	1	0	0	3	3	1.4	30.1	0.01
041	*Stictochironomus* sp.	0	9	0	50	6	13	279.6	0.06
042	*Tribelos* sp.	4	9	4	0	0	3.4	73.1	0.01

SITE WW6 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	40	0	100	251	200	118.2	2541.9	0.51
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	0	0	2	51	105	31.6	679.6	0.14
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	320	240	0	150	0	142	3053.8	0.61
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	1	0	0	3	1	1	21.5	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* sp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	50	0	10	215.1	0.04
056	*Psectrocladius* sp.	0	0	0	0	0	0	0.0	0.00
057	*Thienemanniella* sp.	0	40	0	0	0	8	172.0	0.03
058	*Zalutschia* sp.	0	0	0	100	200	60	1290.3	0.26
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	0	0	0	0	1	0.2	4.3	0.00
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	0	0	0.0	0.00
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	41	1	9	106	102	51.8	1114.0	0.22
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	1	0.2	4.3	0.00

SITE WW6 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Hydracarina								
072	*Arrenurus* sp.	0	0	0	0	0	0	0.0	0.00
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00
074	*Limnesia* sp.	1	1	1	0	0	0.6	12.9	0.00
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	0	0	0	0	0	0	0.0	0.00
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	40	100	0	0	0	28	602.2	0.12
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	0	300	0	100	100	100	2150.5	0.43
081	*Alona rectangula*	40	100	0	0	0	28	602.2	0.12
082	*Chydorus sphaericus* gp.	14120	34900	21400	6550	13900	18174	390838.7	78.55
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	40	0	0	0	0	8	172.0	0.03
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	0	0	0	0	0	0	0.0	0.00
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	0	100	0	0	20	430.1	0.09
092	*Macrothrix laticornis*	0	0	0	0	0	0	0.0	0.00
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	0	40	0	0	100	28	602.2	0.12
095	Cyclopoida	920	840	1500	1200	2300	1352	29075.3	5.84
096	Harpacticoida	280	120	0	150	300	170	3655.9	0.73
	Ostracoda								
097	*Candona* sp.	0	0	0	50	0	10	215.1	0.04
098	*Cyclocypris* sp.	0	0	100	0	0	20	430.1	0.09
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	0	0	0	0	0	0	0.0	0.00
101	*Limnocythere* sp.	0	0	0	0	0	0	0.0	0.00
	Amphipoda								
102	*Gammarus lacustris*	0	0	1	1	11	2.6	55.9	0.01
103	*Hyalella azteca*	174	96	75	521	793	331.8	7135.5	1.43
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	160	40	0	250	500	190	4086.0	0.82
107	Tubificidae	122	201	4	354	504	237	5096.8	1.02
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	1	0	0.2	4.3	0.00
109	*Mooreobdella fervida*	0	1	0	0	0	0.2	4.3	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00

SITE WW6 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	2	0	0	0	0	0.4	8.6	0.00
113	*Piscicola milneri*	0	3	1	0	1	1	21.5	0.00
114	**Nematoda**	1880	601	801	1150	2102	1306.8	28103.2	5.65
	Gastropoda								
115	*Valvata* spp.	1	0	0	1	0	0.4	8.6	0.00
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	0	0	0	0	0	0.0	0.00
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	127	44	104	413	420	221.6	4765.6	0.96
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	0	200	300	0	401	180.2	3875.3	0.78
128	**Tardigrada**	120	40	0	150	600	182	3914.0	0.79
	Total Taxa	**24**	**27**	**19**	**30**	**30**	**26**		
	Total Numbers	**18445**	**37941**	**24510**	**11820**	**22963**	**23135.8**	**497544.1**	

SITE BWW1

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	41	21	11	21	0	18.8	404.3	0.25
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	0	1	0.2	4.3	0.00
010	*Mystacides* sp.	0	0	0	0	0	0	0.0	0.00
011	*Oecetis* sp.	0	0	20	0	0	4	86.0	0.05
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	0	0	0	1	20	4.2	90.3	0.06
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	0	0	0	0	0.0	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	20	21	0	21	42	20.8	447.3	0.28
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	1	0	0	0	0.2	4.3	0.00
027	*Cladopelma* sp.	160	160	61	60	60	100.2	2154.8	1.34
028	*Cryptochironomus* sp.	3	7	12	4	8	6.8	146.2	0.09
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	60	160	121	61	0	80.4	1729.0	1.07
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	0	0	0	0	0	0.0	0.00
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	0	20	0	40	0	12	258.1	0.16
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	60	20	20	0	0	20	430.1	0.27
039	*Polypedilum* sp.	57	183	144	106	183	134.6	2894.6	1.80
040	*Pseudochironomus* sp.	2	20	0	20	1	8.6	184.9	0.11
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	2	1	0.6	12.9	0.01

SITE BWW1 (continued)

Code	Taxa	Number per Sample ($0.046\ m^2$)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	1520	2281	1641	561	1020	1404.6	30206.5	18.76
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	0	0	0	20	40	12	258.1	0.16
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	600	460	440	360	241	420.2	9036.6	5.61
048	Chironominae (early instar)	20	0	0	0	0	4	86.0	0.05
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	20	0	0	20	0	8	172.0	0.11
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	0	0	0	0	0	0.0	0.00
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	0	0	0	40	0	8	172.0	0.11
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	0	4	0	2	5	2.2	47.3	0.03
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	20	0	20	0	8	172.0	0.11
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	246	283	318	372	417	327.2	7036.6	4.37
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	1	0.2	4.3	0.00
	Coleoptera								
066	*Haliplus* sp.	1	0	0	0	0	0.2	4.3	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00

SITE BWW1 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Hydracarina								
072	*Arrenurus* sp.	1	1	2	3	1	1.6	34.4	0.02
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00
074	*Limnesia* sp.	50	60	28	15	56	41.8	898.9	0.56
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	21	20	0	0	2	8.6	184.9	0.11
077	*Neumania* sp.	0	0	0	0	0	0	0.0	0.00
	Cladocera								
078	*Bosmina longirostris*	180	120	380	580	380	328	7053.8	4.38
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	200	160	160	60	200	156	3354.8	2.08
081	*Alona rectangula*	0	0	0	0	20	4	86.0	0.05
082	*Chydorus sphaericus* gp.	260	420	620	1920	1920	1028	22107.5	13.73
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	40	60	60	0	40	40	860.2	0.53
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	280	60	180	200	120	168	3612.9	2.24
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	0	0	0	0	0	0	0.0	0.00
092	*Macrothrix laticornis*	0	0	0	0	20	4	86.0	0.05
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	301	240	200	460	240	288.2	6197.8	3.85
095	Cyclopoida	560	740	620	560	740	644	13849.5	8.60
096	Harpacticoida	300	740	280	400	360	416	8946.2	5.56
	Ostracoda								
097	*Candona* sp.	200	520	240	260	260	296	6365.6	3.95
098	*Cyclocypris* sp.	0	40	0	0	20	12	258.1	0.16
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	40	60	160	160	60	96	2064.5	1.28
101	*Limnocythere* sp.	20	80	60	100	40	60	1290.3	0.80
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	3	0	0.6	12.9	0.01
103	*Hyalella azteca*	70	99	73	207	168	123.4	2653.8	1.65
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	0	40	0	20	40	20	430.1	0.27
107	Tubificidae	80	160	80	100	101	104.2	2240.9	1.39
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	0	2	1	0.6	12.9	0.01
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00

SITE BWW1 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
111	*Glossiphonia complanata*	0	0	0	4	0	0.8	17.2	0.01
112	*Helobdella stagnalis*	0	1	0	2	2	1	21.5	0.01
113	*Piscicola milneri*	0	0	1	0	0	0.2	4.3	0.00
114	**Nematoda**	760	1160	1160	561	740	876.2	18843.0	11.70
	Gastropoda								
115	*Valvata* spp.	3	2	42	63	25	27	580.6	0.36
116	*Fossaria* sp.	1	1	23	0	7	6.4	137.6	0.09
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	1	0	0	0.2	4.3	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	20	0	0	0	4	86.0	0.05
121	*Helisoma* sp.	1	1	0	0	0	0.4	8.6	0.01
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	61	42	64	112	131	82	1763.4	1.10
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	2	1	0	0.6	12.9	0.01
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	60	20	0	60	60	40	860.2	0.53
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**36**	**41**	**32**	**42**	**41**	**38.4**		
	Total Numbers	**6299**	**8528**	**7224**	**7584**	**7794**	**7485.8**	**160984.9**	

SITE BWW2

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	61	22	13	2	3	20.2	434.4	0.19
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	40	0	0	8	172.0	0.08
010	*Mystacides* sp.	0	0	1	0	0	0.2	4.3	0.00
011	*Oecetis* sp.	40	0	0	1	80	24.2	520.4	0.23
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	2	1	1	2	0	1.2	25.8	0.01
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	0	0	0	0	0.0	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	20	22	1	2	0	9	193.5	0.09
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	1	0	0	0	0.2	4.3	0.00
027	*Cladopelma* sp.	220	140	80	240	40	144	3096.8	1.39
028	*Cryptochironomus* sp.	31	8	5	4	12	12	258.1	0.12
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	80	40	0	40	81	48.2	1036.6	0.47
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	1	0	0	0	0.2	4.3	0.00
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	20	0	0	0	0	4	86.0	0.04
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	71	36	259	49	102	103.4	2223.7	1.00
040	*Pseudochironomus* sp.	23	1	2	1	1	5.6	120.4	0.05
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE BWW2 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	2220	2100	2360	2320	1121	2024.2	43531.2	19.53
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	0	0	0	0	0	0	0.0	0.00
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	700	620	880	480	841	704.2	15144.1	6.80
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	2	0	1	0	0.6	12.9	0.01
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	0	0	0	0	0	0.0	0.00
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	0	0	0	0	0	0	0.0	0.00
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	0	0	1	0	0	0.2	4.3	0.00
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	0	0	0.0	0.00
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	523	348	460	346	311	397.6	8550.5	3.84
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00

SITE BWW2 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Hydracarina								
072	*Arrenurus* sp.	20	0	1	1	0	4.4	94.6	0.04
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00
074	*Limnesia* sp.	96	30	60	41	44	54.2	1165.6	0.52
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	25	1	0	2	5	6.6	141.9	0.06
077	*Neumania* sp.	20	1	0	3	40	12.8	275.3	0.12
	Cladocera								
078	*Bosmina longirostris*	120	400	240	120	120	200	4301.1	1.93
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	420	600	280	320	360	396	8516.1	3.82
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	860	2300	920	600	1040	1144	24602.2	11.04
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	40	300	80	40	40	100	2150.5	0.97
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	180	200	80	40	0	100	2150.5	0.97
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	100	200	40	0	0	68	1462.4	0.66
092	*Macrothrix laticornis*	20	0	0	0	0	4	86.0	0.04
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	360	1800	280	120	200	552	11871.0	5.33
095	Cyclopoida	1500	2400	800	880	1480	1412	30365.6	13.63
096	Harpacticoida	740	2300	1320	880	1080	1264	27182.8	12.20
	Ostracoda								
097	*Candona* sp.	180	200	400	40	160	196	4215.1	1.89
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	140	100	280	80	160	152	3268.8	1.47
101	*Limnocythere* sp.	20	40	0	0	80	28	602.2	0.27
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	0	0	0.0	0.00
103	*Hyalella azteca*	46	6	9	50	52	32.6	701.1	0.31
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	0	0	0	0	0	0	0.0	0.00
107	Tubificidae	0	201	161	161	82	121	2602.2	1.17
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	0	0	0	0	0.0	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00

SITE BWW2 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	0	0	0	0	0	0	0.0	0.00
113	*Piscicola milneri*	0	0	0	0	0	0	0.0	0.00
114	**Nematoda**	1160	841	1160	720	760	928.2	19961.3	8.96
	Gastropoda								
115	*Valvata* spp.	0	0	0	0	0	0	0.0	0.00
116	*Fossaria* sp.	0	0	0	0	0	0	0.0	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	20	0	0	0	4	86.0	0.04
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	54	55	14	205	9	67.4	1449.5	0.65
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	20	20	0	0	0	8	172.0	0.08
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**34**	**35**	**30**	**31**	**27**	**31.4**		
	Total Numbers	**10132**	**15357**	**10228**	**7791**	**8304**	**10362.4**	**222847.3**	

SITE BWW3

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	48	4	10	127	6	39	838.7	0.43
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	40	0	0	8	172.0	0.09
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	0	0	0	0	0	0	0.0	0.00
011	*Oecetis* sp.	0	0	0	0	1	0.2	4.3	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	1	0	0	1	0	0.4	8.6	0.00
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	0	0	0	0	0.0	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	45	7	1	42	41	27.2	584.9	0.30
020	*Chaoborus* sp.	0	0	1	0	0	0.2	4.3	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	1	9	1	1	2.4	51.6	0.03
027	*Cladopelma* sp.	200	160	120	200	200	176	3784.9	1.92
028	*Cryptochironomus* sp.	8	50	0	9	8	15	322.6	0.16
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	20	0	80	0	1	20.2	434.4	0.22
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	0	0	0	0	0	0.0	0.00
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	40	0	0	0	40	16	344.1	0.17
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	0	0	0	0	0.0	0.00
039	*Polypedilum* sp.	66	60	53	71	28	55.6	1195.7	0.61
040	*Pseudochironomus* sp.	23	2	3	3	4	7	150.5	0.08
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE BWW3 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	1642	1760	3040	2400	1560	2080.4	44739.8	22.70
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	0	0	0	0	0	0	0.0	0.00
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	460	440	1000	1080	480	692	14881.7	7.55
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	0	0	0	0	0	0.0	0.00
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	0	0	0	0	0	0	0.0	0.00
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	0	0	0	0	1	0.2	4.3	0.00
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	0	0	0.0	0.00
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	247	408	520	313	259	349.4	7514.0	3.81
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00

SITE BWW3 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Hydracarina								
072	*Arrenurus* sp.	0	1	0	1	0	0.4	8.6	0.00
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00
074	*Limnesia* sp.	105	188	78	91	45	101.4	2180.6	1.11
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	1	0	1	2	2	1.2	25.8	0.01
077	*Neumania* sp.	2	1	0	1	40	8.8	189.2	0.10
	Cladocera								
078	*Bosmina longirostris*	180	360	600	240	200	316	6795.7	3.45
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	120	240	400	280	120	232	4989.2	2.53
081	*Alona rectangula*	0	0	40	0	0	8	172.0	0.09
082	*Chydorus sphaericus* gp.	460	800	2680	1160	800	1180	25376.3	12.88
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	40	80	80	0	0	40	860.2	0.44
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	40	0	8	172.0	0.09
087	*Daphnia galeata mendotae*	40	160	120	80	120	104	2236.6	1.13
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	100	80	0	40	0	44	946.2	0.48
092	*Macrothrix laticornis*	0	0	0	0	0	0	0.0	0.00
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	200	120	200	280	320	224	4817.2	2.44
095	Cyclopoida	1020	880	1040	1160	600	940	20215.1	10.26
096	Harpacticoida	420	920	760	760	760	724	15569.9	7.90
	Ostracoda								
097	*Candona* sp.	120	200	200	480	240	248	5333.3	2.71
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	120	0	160	160	160	120	2580.6	1.31
101	*Limnocythere* sp.	160	160	200	0	40	112	2408.6	1.22
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	0	0	0.0	0.00
103	*Hyalella azteca*	19	75	150	3	9	51.2	1101.1	0.56
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	0	0	40	0	0	8	172.0	0.09
107	Tubificidae	143	243	284	242	282	238.8	5135.5	2.61
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	0	0	0	0	0.0	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00

SITE BWW3 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	0	0	0	0	0	0	0.0	0.00
113	*Piscicola milneri*	0	0	0	0	0	0	0.0	0.00
114	**Nematoda**	300	360	1001	1280	722	732.6	15754.8	8.00
	Gastropoda								
115	*Valvata* spp.	21	4	2	2	2	6.2	133.3	0.07
116	*Fossaria* sp.	0	1	0	2	0	0.6	12.9	0.01
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	1	0	0	0	0.2	4.3	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	40	0	0	0	8	172.0	0.09
121	*Helisoma* sp.	0	0	0	1	1	0.4	8.6	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	46	87	138	58	170	99.8	2146.2	1.09
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	20	0	0	0	0	4	86.0	0.04
	Hydrozoa								
127	*Hydra* sp.	80	160	241	0	81	112.4	2417.2	1.23
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**34**	**33**	**33**	**33**	**34**	**33.4**		
	Total Numbers	**6517**	**8053**	**13292**	**10610**	**7344**	**9163.2**	**197058.1**	

SITE BWW4

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	65	21	41	4	3	26.8	576.3	0.41
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	0	0	0	0	0	0	0.0	0.00
011	*Oecetis* sp.	0	20	0	0	40	12	258.1	0.18
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	2	0	0	0	2	0.8	17.2	0.01
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	0	0	0	0	0.0	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	1	0	2	1	2	1.2	25.8	0.02
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	0	0	1	0	0.2	4.3	0.00
027	*Cladopelma* sp.	40	100	120	40	160	92	1978.5	1.42
028	*Cryptochironomus* sp.	10	3	2	44	4	12.6	271.0	0.19
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	20	0	80	0	40	28	602.2	0.43
031	*Demicryptochironomus* sp.	0	0	1	0	0	0.2	4.3	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	0	0	0	0	0	0.0	0.00
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	0	0	0	0	0	0	0.0	0.00
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	0	41	40	0	16.2	348.4	0.25
039	*Polypedilum* sp.	115	69	15	20	56	55	1182.8	0.85
040	*Pseudochironomus* sp.	1	1	4	2	4	2.4	51.6	0.04
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE BWW4 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	1181	1380	1441	1800	2640	1688.4	36309.7	26.00
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	0	0	0	0	0	0	0.0	0.00
046	*Stempellinella* sp.	0	0	0	0	0	0	0.0	0.00
047	*Tanytarsus* sp.	620	900	841	401	721	696.6	14980.6	10.73
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	2	0	1	0	1	0.8	17.2	0.01
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	20	0	0	0	4	86.0	0.06
056	*Psectrocladius* sp.	0	0	0	0	0	0	0.0	0.00
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	0	0	0	0	0	0	0.0	0.00
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	1	0	1	0	0	0.4	8.6	0.01
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	0	0	0.0	0.00
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	318	189	293	232	546	315.6	6787.1	4.86
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	1	0	0	0	0	0.2	4.3	0.00
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00

SITE BWW4 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Hydracarina								
072	*Arrenurus* sp.	1	22	1	40	1	13	279.6	0.20
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00
074	*Limnesia* sp.	53	9	152	34	38	57.2	1230.1	0.88
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	2	1	1	43	2	9.8	210.8	0.15
077	*Neumania* sp.	3	0	0	0	0	0.6	12.9	0.01
	Cladocera								
078	*Bosmina longirostris*	0	0	0	0	0	0	0.0	0.00
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	180	180	200	160	160	176	3784.9	2.71
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	520	360	960	520	200	512	11010.8	7.88
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	80	60	80	0	40	52	1118.3	0.80
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	0	0	0	0	0	0	0.0	0.00
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	80	40	40	0	40	40	860.2	0.62
092	*Macrothrix laticornis*	0	0	0	0	0	0	0.0	0.00
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	40	0	0	0	0	8	172.0	0.12
095	Cyclopoida	480	540	840	640	440	588	12645.2	9.05
096	Harpacticoida	600	900	960	920	680	812	17462.4	12.50
	Ostracoda								
097	*Candona* sp.	120	140	400	0	360	204	4387.1	3.14
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	0	0	0	40	0	8	172.0	0.12
100	*Darwinula stevensoni*	60	40	80	80	160	84	1806.5	1.29
101	*Limnocythere* sp.	100	120	320	320	160	204	4387.1	3.14
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	0	0	0.0	0.00
103	*Hyalella azteca*	14	7	2	61	9	18.6	400.0	0.29
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	20	0	0	0	0	4	86.0	0.06
107	Tubificidae	123	61	80	360	80	140.8	3028.0	2.17
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	1	0	0	0	0.2	4.3	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00

SITE BWW4 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
111	*Glossiphonia complanata*	0	0	0	0	0	0	0.0	0.00
112	*Helobdella stagnalis*	0	0	0	0	2	0.4	8.6	0.01
113	*Piscicola milneri*	1	0	0	0	0	0.2	4.3	0.00
114	**Nematoda**	460	141	600	841	560	520.4	11191.4	8.01
	Gastropoda								
115	*Valvata* spp.	0	0	0	0	1	0.2	4.3	0.00
116	*Fossaria* sp.	0	0	0	1	0	0.2	4.3	0.00
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	20	120	0	0	28	602.2	0.43
121	*Helisoma* sp.	0	0	0	0	0	0	0.0	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	48	76	40	51	82	59.4	1277.4	0.91
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	0	0	0	0	0	0	0.0	0.00
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	34	28	31	26	31	30		
	Total Numbers	5362	5421	7759	6696	7234	6494.4	139664.5	

SITE BWW5

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	18	86	46	51	96	59.4	1277.4	0.44
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	0	0	0	0	0	0	0.0	0.00
011	*Oecetis* sp.	40	0	0	1	80	24.2	520.4	0.18
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	4	1	2	1	1	1.8	38.7	0.01
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	0	0	0	0	0	0	0.0	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	0	0	0	0	0.0	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	3	42	0	122	47	42.8	920.4	0.32
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	40	0	0	41	16.2	348.4	0.12
027	*Cladopelma* sp.	80	160	240	200	40	144	3096.8	1.08
028	*Cryptochironomus* sp.	5	47	12	84	5	30.6	658.1	0.23
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	40	80	0	0	40	32	688.2	0.24
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	0	0	0	0	0	0	0.0	0.00
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	0	0	0	0	0	0	0.0	0.00
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	0	40	0	0	0	8	172.0	0.06
039	*Polypedilum* sp.	84	174	55	9	15	67.4	1449.5	0.50
040	*Pseudochironomus* sp.	7	5	2	3	2	3.8	81.7	0.03
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE BWW5 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	3003	2922	1920	2680	1965	2498	53720.4	18.68
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	0	0	0	0	0	0	0.0	0.00
046	*Stempellinella* sp.	0	160	0	0	0	32	688.2	0.24
047	*Tanytarsus* sp.	1483	1722	1360	1122	1080	1353.4	29105.4	10.12
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	2	0	0	1	0	0.6	12.9	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	40	0	0	0	0	8	172.0	0.06
056	*Psectrocladius* sp.	0	0	0	0	0	0	0.0	0.00
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	0	0	0	0	0	0	0.0	0.00
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	1	0	2	0	0	0.6	12.9	0.00
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	0	0	0.0	0.00
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	221	582	147	178	427	311	6688.2	2.33
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00

SITE BWW5 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Hydracarina								
072	*Arrenurus* sp.	1	0	0	0	3	0.8	17.2	0.01
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00
074	*Limnesia* sp.	31	22	53	152	27	57	1225.8	0.43
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	2	0	42	1	0	9	193.5	0.07
077	*Neumania* sp.	40	40	0	0	1	16.2	348.4	0.12
	Cladocera								
078	*Bosmina longirostris*	120	200	160	200	0	136	2924.7	1.02
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	720	360	280	480	440	456	9806.5	3.41
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	5080	1160	2120	4120	1840	2864	61591.4	21.42
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	80	120	80	120	0	80	1720.4	0.60
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	200	240	80	360	240	224	4817.2	1.68
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	80	80	40	80	40	64	1376.3	0.48
092	*Macrothrix laticornis*	40	0	0	0	0	8	172.0	0.06
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	200	200	120	320	160	200	4301.1	1.50
095	Cyclopoida	1960	1720	680	1680	1520	1512	32516.1	11.31
096	Harpacticoida	1560	880	480	1280	1200	1080	23225.8	8.08
	Ostracoda								
097	*Candona* sp.	560	400	280	200	320	352	7569.9	2.63
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	0	0	0	0	0	0	0.0	0.00
100	*Darwinula stevensoni*	40	120	0	40	80	56	1204.3	0.42
101	*Limnocythere* sp.	200	280	160	160	160	192	4129.0	1.44
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	0	0	0.0	0.00
103	*Hyalella azteca*	60	33	77	79	49	59.6	1281.7	0.45
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	160	41	160	120	0	96.2	2068.8	0.72
107	Tubificidae	84	162	162	201	163	154.4	3320.4	1.15
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	0	0	0	0	0.0	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00

SITE BWW5 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
111	*Glossiphonia complanata*	0	0	0	1	0	0.2	4.3	0.00
112	*Helobdella stagnalis*	0	0	0	0	0	0	0.0	0.00
113	*Piscicola milneri*	0	0	1	0	0	0.2	4.3	0.00
114	**Nematoda**	920	800	1161	481	600	792.4	17040.9	5.93
	Gastropoda								
115	*Valvata* spp.	43	0	0	0	0	8.6	184.9	0.06
116	*Fossaria* sp.	0	2	41	0	0	8.6	184.9	0.06
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	0	40	0	0	0	8	172.0	0.06
121	*Helisoma* sp.	0	4	0	0	0	0.8	17.2	0.01
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	56	127	250	51	54	107.6	2314.0	0.80
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	2	0	0	0.4	8.6	0.00
126	**Microturbellaria**	0	83	240	1	40	72.8	1565.6	0.54
	Hydrozoa								
127	*Hydra* sp.	81	40	280	120	80	120.2	2584.9	0.90
128	**Tardigrada**	0	0	0	0	0	0	0.0	0.00
	Total Taxa	**39**	**38**	**33**	**34**	**32**	**35.2**		
	Total Numbers	**17349**	**13215**	**10735**	**14699**	**10856**	**13370.8**	**287544.1**	

SITE BWW6

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Ephemeroptera								
001	*Callibaetis* sp.	0	0	0	0	0	0	0.0	0.00
002	*Caenis* sp.	0	2	0	46	0	9.6	206.5	0.10
003	*Ephemera* sp.	0	0	0	0	0	0	0.0	0.00
004	*Leptophlebia* sp.	0	0	0	0	0	0	0.0	0.00
	Trichoptera								
005	*Cheumatopsyche* sp.	0	0	0	0	0	0	0.0	0.00
006	*Hydropsyche* sp.	0	0	0	0	0	0	0.0	0.00
007	*Agraylea* sp.	0	0	0	0	0	0	0.0	0.00
008	*Hydroptila* sp.	0	0	0	0	0	0	0.0	0.00
009	*Oxyethira* sp.	0	0	0	0	0	0	0.0	0.00
010	*Mystacides* sp.	0	0	0	0	0	0	0.0	0.00
011	*Oecetis* sp.	0	1	1	0	0	0.4	8.6	0.00
012	*Triaenodes* sp.	0	0	0	0	0	0	0.0	0.00
013	*Molanna* sp.	1	3	0	4	0	1.6	34.4	0.02
014	*Agrypnia* sp.	0	0	0	0	0	0	0.0	0.00
015	*Phryganea* sp.	1	0	0	0	1	0.4	8.6	0.00
016	*Neureclipsis* sp.	0	0	0	0	0	0	0.0	0.00
	Diptera								
017	*Bezzia* gp.	0	0	0	0	0	0	0.0	0.00
018	*Culicoides* sp.	0	0	0	0	0	0	0.0	0.00
019	*Palpomyia* gp.	1	40	1	1	3	9.2	197.8	0.09
020	*Chaoborus* sp.	0	0	0	0	0	0	0.0	0.00
021	*Hemerodromia* sp.	0	0	0	0	0	0	0.0	0.00
022	*Similium* sp.	0	0	0	0	0	0	0.0	0.00
023	*Chrysops* sp.	0	0	0	0	0	0	0.0	0.00
024	*Limnophila* sp.	0	0	0	0	0	0	0.0	0.00
025	*Pilaria* sp.	0	0	0	0	0	0	0.0	0.00
	Chironomidae								
	Chironominae								
	Chironomini Tribe								
026	*Chironomus* spp.	0	1	0	0	1	0.4	8.6	0.00
027	*Cladopelma* sp.	161	200	120	40	320	168.2	3617.2	1.67
028	*Cryptochironomus* sp.	9	10	51	7	1	15.6	335.5	0.16
029	*Cryptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
030	*Dicrotendipes* sp.	81	0	0	80	40	40.2	864.5	0.40
031	*Demicryptochironomus* sp.	0	0	0	0	0	0	0.0	0.00
032	*Einfeldia* sp.	0	0	0	0	0	0	0.0	0.00
033	*Endochironomus* sp.	1	2	5	0	1	1.8	38.7	0.02
034	*Glyptotendipes* sp.	0	0	0	0	0	0	0.0	0.00
035	*Microtendipes* sp.	0	0	0	0	0	0	0.0	0.00
036	*Parachironomus* sp.	0	40	0	0	40	16	344.1	0.16
037	*Paracladopelma* sp.	0	0	0	0	0	0	0.0	0.00
038	*Paratendipes* sp.	40	40	0	0	0	16	344.1	0.16
039	*Polypedilum* sp.	30	61	98	94	84	73.4	1578.5	0.73
040	*Pseudochironomus* sp.	2	3	1	4	0	2	43.0	0.02
041	*Stictochironomus* sp.	0	0	0	0	0	0	0.0	0.00
042	*Tribelos* sp.	0	0	0	0	0	0	0.0	0.00

SITE BWW6 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Tanytarsini Tribe								
043	*Cladotanytarsus* sp.	1521	1280	1320	2046	2400	1713.4	36847.3	17.05
044	*Micropsectra* sp.	0	0	0	0	0	0	0.0	0.00
045	*Paratanytarsus* sp.	40	1	0	0	0	8.2	176.3	0.08
046	*Stempellinella* sp.	0	40	0	160	0	40	860.2	0.40
047	*Tanytarsus* sp.	120	880	440	1721	960	824.2	17724.7	8.20
048	Chironominae (early instar)	0	0	0	0	0	0	0.0	0.00
	Diamesinae								
	Diamesini Tribe								
049	*Potthastia longimana* gp.	0	0	0	0	0	0	0.0	0.00
	Orthocladiinae								
050	*Corynoneura* sp.	0	0	0	0	0	0	0.0	0.00
051	*Cricotopus* sp.	0	0	0	0	0	0	0.0	0.00
052	*Cricotopus/Orthocladius* spp	0	0	0	0	0	0	0.0	0.00
053	*Diplocladius* sp.	0	0	0	0	0	0	0.0	0.00
054	*Metriocnemus* sp.	0	0	0	0	0	0	0.0	0.00
055	*Nanocladius* sp.	0	0	0	0	0	0	0.0	0.00
056	*Psectrocladius* sp.	0	0	0	0	0	0	0.0	0.00
057	*Thienemanniella* sp.	0	0	0	0	0	0	0.0	0.00
058	*Zalutschia* sp.	40	0	0	0	0	8	172.0	0.08
059	Orthocladiinae (early instar)	0	0	0	0	0	0	0.0	0.00
	Tanypodinae								
	Coelotanypodini Tribe								
060	*Clinotanypus* sp.	0	1	1	2	1	1	21.5	0.01
	Natarsiini Tribe								
061	*Natarsia* sp.	0	0	0	0	0	0	0.0	0.00
	Pentaneurini Tribe								
062	*Ablabesmyia* sp.	0	0	0	0	0	0	0.0	0.00
063	*Thienemannimyia* gp.	0	0	0	0	0	0	0.0	0.00
	Procladiini Tribe								
064	*Procladius* sp.	337	304	144	376	339	300	6451.6	2.99
	Tanypodini Tribe								
065	*Tanypus* sp.	0	0	0	0	0	0	0.0	0.00
	Coleoptera								
066	*Haliplus* sp.	0	0	0	0	0	0	0.0	0.00
	Hemiptera								
067	*Arctocorisa* sp.	0	0	0	0	0	0	0.0	0.00
068	*Sigara* spp.	0	0	0	0	0	0	0.0	0.00
	Lepidoptera								
069	Lepidoptera (unidentified)	0	0	0	0	0	0	0.0	0.00
	Odonata								
071	*Aeshna* sp.	0	0	0	0	0	0	0.0	0.00
071	*Enallagma* sp.	0	0	0	0	0	0	0.0	0.00

SITE BWW6 (continued)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
	Hydracarina								
072	*Arrenurus* sp.	40	3	2	1	0	9.2	197.8	0.09
073	*Hydrodroma* sp.	0	0	0	0	0	0	0.0	0.00
074	*Limnesia* sp.	15	17	24	139	43	47.6	1023.7	0.47
075	*Limnochares* sp.	0	0	0	0	0	0	0.0	0.00
076	*Piona* spp.	4	84	4	3	6	20.2	434.4	0.20
077	*Neumania* sp.	1	0	0	40	0	8.2	176.3	0.08
	Cladocera								
078	*Bosmina longirostris*	0	0	0	0	0	0	0.0	0.00
079	*Acroperus harpae*	0	0	0	0	0	0	0.0	0.00
080	*Alona affinis*	80	320	1	960	480	368.2	7918.3	3.66
081	*Alona rectangula*	0	0	0	0	0	0	0.0	0.00
082	*Chydorus sphaericus* gp.	3240	4560	1480	2880	2440	2920	62795.7	29.06
083	*Eurycercus lamellatus* gp.	0	0	0	0	0	0	0.0	0.00
084	*Leydigia leydigi*	200	40	0	120	0	72	1548.4	0.72
085	*Pleuroxus denticulatus*	0	0	0	0	0	0	0.0	0.00
086	*Ceriodaphnia quadrangula*	0	0	0	0	0	0	0.0	0.00
087	*Daphnia galeata mendotae*	0	0	0	0	0	0	0.0	0.00
088	*Daphnia pulex* gp.	0	0	0	0	0	0	0.0	0.00
089	*Daphnia retrocurva*	0	0	0	0	0	0	0.0	0.00
090	*Simocephalus vetulus*	0	0	0	0	0	0	0.0	0.00
091	*Ilyocryptus sordidus*	40	40	0	80	0	32	688.2	0.32
092	*Macrothrix laticornis*	0	0	0	80	0	16	344.1	0.16
093	*Diaphanosoma birjei*	0	0	0	0	0	0	0.0	0.00
	Copepoda								
094	Calanoida	0	0	40	40	80	32	688.2	0.32
095	Cyclopoida	560	480	240	1480	520	656	14107.5	6.53
096	Harpacticoida	400	800	520	920	1120	752	16172.0	7.48
	Ostracoda								
097	*Candona* sp.	160	160	160	360	40	176	3784.9	1.75
098	*Cyclocypris* sp.	0	0	0	0	0	0	0.0	0.00
099	*Cypridopsis* sp.	0	0	40	0	0	8	172.0	0.08
100	*Darwinula stevensoni*	80	0	160	200	1	88.2	1896.8	0.88
101	*Limnocythere* sp.	400	200	280	360	320	312	6709.7	3.11
	Amphipoda								
102	*Gammarus lacustris*	0	0	0	0	0	0	0.0	0.00
103	*Hyalella azteca*	285	121	208	196	106	183.2	3939.8	1.82
	Oligochaeta								
104	Enchytraeidae	0	0	0	0	0	0	0.0	0.00
105	Lumbriculidae	0	0	0	0	0	0	0.0	0.00
106	Naididae	0	80	0	80	80	48	1032.3	0.48
107	Tubificidae	203	202	160	242	160	193.4	4159.1	1.92
	Hirudinea								
108	*Erpobdella punctata*	0	0	0	0	0	0	0.0	0.00
109	*Mooreobdella fervida*	0	0	0	0	0	0	0.0	0.00
110	*Nephelopsus obscura*	0	0	0	0	0	0	0.0	0.00

SITE BWW6 (concluded)

Code	Taxa	Number per Sample (0.046 m^2)					Mean Number	Mean SC	Percent
		1	2	3	4	5			
111	*Glossiphonia complanata*	0	0	1	0	0	0.2	4.3	0.00
112	*Helobdella stagnalis*	0	0	0	0	0	0	0.0	0.00
113	*Piscicola milneri*	0	0	0	0	0	0	0.0	0.00
114	**Nematoda**	280	480	241	240	480	344.2	7402.2	3.43
	Gastropoda								
115	*Valvata* spp.	6	9	3	1	0	3.8	81.7	0.04
116	*Fossaria* sp.	1	0	1	80	3	17	365.6	0.17
117	*Lymnaea stagnalis*	0	0	0	0	0	0	0.0	0.00
118	*Physa* sp.	0	0	0	0	0	0	0.0	0.00
119	*Armiger crista*	0	0	0	0	0	0	0.0	0.00
120	*Gyraulus* sp.	40	0	1	0	0	8.2	176.3	0.08
121	*Helisoma* sp.	0	0	2	0	0	0.4	8.6	0.00
122	*Promenetus exacuous*	0	0	0	0	0	0	0.0	0.00
	Pelecypoda								
123	*Pisidium* sp.	53	142	94	53	100	88.4	1901.1	0.88
124	*Sphaerium (Musculium)* sp.	0	0	0	0	0	0	0.0	0.00
	Turbellaria								
125	*Dugesia tigrina*	0	0	0	0	0	0	0.0	0.00
126	**Microturbellaria**	0	0	0	0	0	0	0.0	0.00
	Hydrozoa								
127	*Hydra* sp.	801	803	120	80	120	384.8	8275.3	3.83
128	**Tardigrada**	0	0	0	0	40	8	172.0	0.08
	Total Taxa	**36**	**36**	**33**	**36**	**31**	**34.4**		
	Total Numbers	**9274**	**11450**	**5964**	**13216**	**10330**	**10046.8**	**216060.2**	

APPENDIX E

BENTHIC INVERTEBRATE BASIC COMPUTATIONS AND STATISTICAL ANALYSES, NOVEMBER 2002

Appendix E-1. **Basic computations for numbers of taxa and standing crops (number/m^2) with standard deviation (SD) for the Ash Lagoon Area, November 2002.**

SITE AL

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	22	17	17	19	18	19	2.1
Number of Ephemeroptera/Trichoptera Taxa	1	2	1	1	1	1	0.4
Number of Chironomidae Taxa	10	6	7	8	5	7	1.9
Number of "Other Arthropoda" Taxa	1	2	3	3	4	3	1.1
Number of Crustacea Taxa	8	4	3	4	5	5	1.9
Number of Oligochaeta Taxa	1	1	1	1	1	1	0.0
Number of "Other Group" Taxa	1	1	1	1	1	1	0.0
Standing Crop of Total Organisms	40387	61204	81032	64473	66516	62723	14610.6
Standing Crop of Ephemeroptera/Trichoptera	108	108	22	22	65	65	43.0
Standing Crop of Chironomidae	24688	40796	52903	41591	45247	41045	10322.1
Standing Crop of "Other Arthropoda"	473	602	258	280	409	404	142.2
Standing Crop of Crustacea	12538	16473	24860	18172	17634	17935	4454.6
Standing Crop of Oligochaeta	387	366	172	387	645	391	168.2
Standing Crop of Nematoda	0	301	22	301	430	211	190.2
Standing Crop of "Other Group"	2194	2559	2796	3720	2086	2671	651.8

SITE ADC

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	35	29	18	33	35	30	7.1
Number of Ephemeroptera/Trichoptera Taxa	4	5	1	5	2	3	1.8
Number of Chironomidae Taxa	7	6	4	9	11	7	2.7
Number of "Other Arthropoda" Taxa	10	6	5	8	9	8	2.1
Number of Crustacea Taxa	3	5	4	5	5	4	0.9
Number of Oligochaeta Taxa	3	1	1	1	2	2	0.9
Number of "Other Group" Taxa	7	5	2	4	5	5	1.8
Standing Crop of Total Organisms	494409	650215	102774	116430	345226	341811	237879.1
Standing Crop of Ephemeroptera/Trichoptera	13290	8925	86	3140	258	5140	5790.7
Standing Crop of Chironomidae	94946	154903	17419	18301	107161	78546	59758.2
Standing Crop of "Other Arthropoda"	43634	21871	1957	5505	6344	15862	17310.5
Standing Crop of Crustacea	50366	76151	25570	31011	39441	44508	20012.9
Standing Crop of Oligochaeta	208065	332710	47011	36946	128129	150572	123104.6
Standing Crop of Nematoda	13720	17806	10344	12731	24774	15875	5657.8
Standing Crop of "Other Group"	70387	37849	387	8796	39118	31308	27811.3

Appendix E-1. (continued)

SITE AW1

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	46	48	50	43	49	47	2.8
Number of Ephemeroptera/Trichoptera Taxa	2	3	4	3	6	4	1.5
Number of Chironomidae Taxa	18	15	14	11	15	15	2.5
Number of "Other Arthropoda" Taxa	1	2	6	2	2	3	1.9
Number of Crustacea Taxa	15	15	17	15	14	15	1.1
Number of Oligochaeta Taxa	2	2	1	2	2	2	0.4
Number of "Other Group" Taxa	7	10	7	9	9	8	1.3
Standing Crop of Total Organisms	263269	239935	374430	309720	249333	287338	55580.3
Standing Crop of Ephemeroptera/Trichoptera	301	1398	172	1011	215	619	553.2
Standing Crop of Chironomidae	24387	35333	105140	103290	66817	66994	37384.2
Standing Crop of "Other Arthropoda"	43	86	1914	129	65	447	820.5
Standing Crop of Crustacea	222344	191613	241398	160559	147548	192692	39759.1
Standing Crop of Oligochaeta	1699	1355	1763	3441	6946	3041	2328.5
Standing Crop of Nematoda	8817	5161	14667	18925	15484	12611	5528.0
Standing Crop of "Other Group"	5677	4989	9376	22366	12258	10933	7032.6

SITE AW2

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	39	40	38	42	43	40	2.1
Number of Ephemeroptera/Trichoptera Taxa	3	3	1	4	3	3	1.1
Number of Chironomidae Taxa	11	12	11	13	13	12	1.0
Number of "Other Arthropoda" Taxa	5	4	2	4	3	4	1.1
Number of Crustacea Taxa	14	13	16	11	14	14	1.8
Number of Oligochaeta Taxa	1	2	2	2	2	2	0.4
Number of "Other Group" Taxa	4	5	5	7	7	6	1.3
Standing Crop of Total Organisms	192430	292452	254581	226495	358538	264899	63954.0
Standing Crop of Ephemeroptera/Trichoptera	86	667	22	194	108	215	259.9
Standing Crop of Chironomidae	105806	127161	79097	108688	173462	118843	35018.9
Standing Crop of "Other Arthropoda"	753	409	215	1097	1333	761	464.4
Standing Crop of Crustacea	76151	141011	155140	100796	156538	125927	35802.2
Standing Crop of Oligochaeta	1763	4344	4301	2602	6968	3996	1998.3
Standing Crop of Nematoda	3441	8602	3441	5161	11204	6370	3426.9
Standing Crop of "Other Group"	4430	10258	12366	7957	8925	8787	2943.7

Appendix E-1. (continued)

SITE AW3

VARIABLE	Sample 1	2	3	4	5	MEAN	SD
Number of Total Taxa	30	27	29	30	34	30	2.5
Number of Ephemeroptera/Trichoptera Taxa	1	0	1	1	1	1	0.4
Number of Chironomidae Taxa	9	7	8	8	11	9	1.5
Number of "Other Arthropoda" Taxa	4	5	3	4	2	4	1.1
Number of Crustacea Taxa	11	11	12	12	13	12	0.8
Number of Oligochaeta Taxa	2	1	2	2	1	2	0.5
Number of "Other Group" Taxa	2	2	2	2	5	3	1.3
Standing Crop of Total Organisms	220688	181226	470839	588366	123763	316976	201467.5
Standing Crop of Ephemeroptera/Trichoptera	22	0	22	65	1720	366	757.7
Standing Crop of Chironomidae	83720	55699	144452	187978	30215	100413	64832.2
Standing Crop of "Other Arthropoda"	2946	3290	5333	3419	1118	3222	1500.3
Standing Crop of Crustacea	118344	111957	301247	378731	78559	197768	133545.9
Standing Crop of Oligochaeta	6473	1075	8602	10796	882	5566	4458.1
Standing Crop of Nematoda	6452	5376	10753	4301	5161	6409	2546.4
Standing Crop of "Other Group"	2731	3828	430	3075	6108	3234	2046.3

SITE AW4

VARIABLE	Sample 1	2	3	4	5	MEAN	SD
Number of Total Taxa	54	34	38	47	36	42	8.4
Number of Ephemeroptera/Trichoptera Taxa	6	2	2	6	3	4	2.0
Number of Chironomidae Taxa	17	11	12	11	11	12	2.6
Number of "Other Arthropoda" Taxa	5	1	4	4	2	3	1.6
Number of Crustacea Taxa	14	12	13	16	13	14	1.5
Number of Oligochaeta Taxa	2	1	1	2	1	1	0.5
Number of "Other Group" Taxa	9	6	5	7	5	6	1.7
Standing Crop of Total Organisms	352237	270215	348323	420968	317742	341897	55050.3
Standing Crop of Ephemeroptera/Trichoptera	1075	65	43	4581	108	1174	1953.4
Standing Crop of Chironomidae	165677	106151	184000	146839	159677	152469	29145.0
Standing Crop of "Other Arthropoda"	710	409	452	2452	43	813	946.4
Standing Crop of Crustacea	161763	153226	157548	252086	149527	174830	43430.6
Standing Crop of Oligochaeta	2688	2172	4323	2172	2151	2701	934.4
Standing Crop of Nematoda	16344	6452	22	10774	4344	7587	6242.7
Standing Crop of "Other Group"	3978	1742	1935	2065	1892	2323	932.8

Appendix E-1. (continued)

SITE AW5

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	48	46	60	55	47	51	6.1
Number of Ephemeroptera/Trichoptera Taxa	3	4	8	7	5	5	2.1
Number of Chironomidae Taxa	16	16	18	20	19	18	1.8
Number of "Other Arthropoda" Taxa	4	3	6	3	1	3	1.8
Number of Crustacea Taxa	17	15	18	15	15	16	1.4
Number of Oligochaeta Taxa	2	2	2	1	2	2	0.4
Number of "Other Group" Taxa	5	5	7	8	4	6	1.6
Standing Crop of Total Organisms	304968	400108	528602	199161	240817	334731	132235.5
Standing Crop of Ephemeroptera/Trichoptera	3118	237	2559	1871	409	1639	1281.5
Standing Crop of Chironomidae	145548	169462	290237	126774	100774	166559	73580.7
Standing Crop of "Other Arthropoda"	1505	172	473	172	1892	843	802.7
Standing Crop of Crustacea	117720	148925	174710	66516	114645	124503	40690.3
Standing Crop of Oligochaeta	1806	3505	5269	65	5161	3161	2235.3
Standing Crop of Nematoda	32731	73161	50796	860	16430	34796	28377.3
Standing Crop of "Other Group"	2538	4645	4559	2903	1505	3230	1353.7

SITE AW6

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	32	31	49	30	43	37	8.5
Number of Ephemeroptera/Trichoptera Taxa	1	1	3	1	5	2	1.8
Number of Chironomidae Taxa	14	8	14	9	15	12	3.2
Number of "Other Arthropoda" Taxa	3	5	8	4	2	4	2.3
Number of Crustacea Taxa	10	12	14	9	13	12	2.1
Number of Oligochaeta Taxa	1	1	2	2	1	1	0.5
Number of "Other Group" Taxa	2	3	7	4	6	4	2.1
Standing Crop of Total Organisms	366581	229957	326495	294688	197075	282959	69301.4
Standing Crop of Ephemeroptera/Trichoptera	430	194	1011	215	129	396	362.0
Standing Crop of Chironomidae	168086	75398	102602	87613	67032	100146	40273.9
Standing Crop of "Other Arthropoda"	559	344	1054	473	151	516	337.6
Standing Crop of Crustacea	166086	139140	193849	184731	122774	161316	30027.9
Standing Crop of Oligochaeta	6774	2323	3656	4710	1763	3845	2000.9
Standing Crop of Nematoda	19376	11871	22409	15097	3441	14439	7346.4
Standing Crop of "Other Group"	5269	688	1914	1849	1785	2301	1734.2

Appendix E-1. **(continued)**

SITE BAW1

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	45	39	34	35	31	37	5.4
Number of Ephemeroptera/Trichoptera Taxa	5	3	2	2	2	3	1.3
Number of Chironomidae Taxa	15	12	11	12	10	12	1.9
Number of "Other Arthropoda" Taxa	6	4	3	5	3	4	1.3
Number of Crustacea Taxa	14	13	14	12	12	13	1.0
Number of Oligochaeta Taxa	2	2	2	1	2	2	0.4
Number of "Other Group" Taxa	2	4	1	2	1	2	1.2
Standing Crop of Total Organisms	875183	542710	404645	366860	459140	529708	204121.2
Standing Crop of Ephemeroptera/Trichoptera	430	731	688	258	172	456	250.1
Standing Crop of Chironomidae	32538	50065	59828	33742	49656	45166	11716.6
Standing Crop of "Other Arthropoda"	237	667	237	688	280	422	234.4
Standing Crop of Crustacea	830258	484043	339419	328366	406581	477733	206650.5
Standing Crop of Oligochaeta	6215	2237	1763	1441	925	2516	2122.2
Standing Crop of Nematoda	4344	3011	2581	1720	1290	2589	1193.7
Standing Crop of "Other Group"	1161	1957	129	645	237	826	751.2

SITE BAW2

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	39	36	35	32	34	35	2.6
Number of Ephemeroptera/Trichoptera Taxa	3	2	1	2	2	2	0.7
Number of Chironomidae Taxa	14	14	14	10	12	13	1.8
Number of "Other Arthropoda" Taxa	4	5	6	5	5	5	0.7
Number of Crustacea Taxa	11	10	10	12	12	11	1.0
Number of Oligochaeta Taxa	2	1	1	1	1	1	0.4
Number of "Other Group" Taxa	4	3	2	1	1	2	1.3
Standing Crop of Total Organisms	137548	146430	86925	138043	131935	128176	23633.7
Standing Crop of Ephemeroptera/Trichoptera	129	989	129	129	538	383	382.4
Standing Crop of Chironomidae	41355	64538	19914	29957	22710	35695	18128.1
Standing Crop of "Other Arthropoda"	1161	387	1634	1527	667	1075	539.6
Standing Crop of Crustacea	91806	73935	64667	104194	106925	88305	18551.6
Standing Crop of Oligochaeta	1054	2710	280	1075	129	1049	1024.3
Standing Crop of Nematoda	860	2151	22	452	860	869	796.1
Standing Crop of "Other Group"	1183	1720	280	710	108	800	661.9

Appendix E-1. (continued)

SITE BAW3

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	42	40	38	37	39	39	1.9
Number of Ephemeroptera/Trichoptera Taxa	4	4	4	2	4	4	0.9
Number of Chironomidae Taxa	13	15	14	15	15	14	0.9
Number of "Other Arthropoda" Taxa	3	2	4	2	3	3	0.8
Number of Crustacea Taxa	12	12	9	10	11	11	1.3
Number of Oligochaeta Taxa	2	1	1	1	1	1	0.4
Number of "Other Group" Taxa	7	5	5	6	4	5	1.1
Standing Crop of Total Organisms	136753	140860	120215	168258	274624	168142	61977.7
Standing Crop of Ephemeroptera/Trichoptera	280	215	1247	108	1226	615	570.7
Standing Crop of Chironomidae	30667	55527	59978	52344	58989	51501	12030.5
Standing Crop of "Other Arthropoda"	65	495	1226	1892	430	822	732.0
Standing Crop of Crustacea	91204	75312	45828	109914	208387	106129	61805.6
Standing Crop of Oligochaeta	5269	860	1849	860	860	1940	1909.6
Standing Crop of Nematoda	3441	5591	5161	1742	1720	3531	1829.6
Standing Crop of "Other Group"	5828	2860	4925	1398	3011	3604	1765.1

SITE BAW4

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	42	42	39	47	41	42	2.9
Number of Ephemeroptera/Trichoptera Taxa	5	6	2	5	4	4	1.5
Number of Chironomidae Taxa	16	12	15	16	14	15	1.7
Number of "Other Arthropoda" Taxa	4	6	5	3	1	4	1.9
Number of Crustacea Taxa	10	13	13	15	16	13	2.3
Number of Oligochaeta Taxa	2	1	1	1	1	1	0.4
Number of "Other Group" Taxa	4	3	2	6	4	4	1.5
Standing Crop of Total Organisms	467140	221527	273828	406366	521699	378112	127215.8
Standing Crop of Ephemeroptera/Trichoptera	1011	215	559	344	344	495	313.9
Standing Crop of Chironomidae	34925	51140	78086	57849	65355	57471	16091.1
Standing Crop of "Other Arthropoda"	516	839	1570	280	65	654	587.3
Standing Crop of Crustacea	424022	163699	185699	341204	450688	313062	132830.4
Standing Crop of Oligochaeta	3118	1290	1290	430	860	1398	1025.7
Standing Crop of Nematoda	1290	1290	1720	3441	2581	2065	932.5
Standing Crop of "Other Group"	2258	3054	4903	2817	1806	2968	1186.2

Appendix E-1. (concluded)

SITE BAW5

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	43	39	53	51	35	44	7.7
Number of Ephemeroptera/Trichoptera Taxa	5	1	2	6	3	3	2.1
Number of Chironomidae Taxa	13	12	19	18	11	15	3.6
Number of "Other Arthropoda" Taxa	3	4	5	1	4	3	1.5
Number of Crustacea Taxa	13	14	15	15	9	13	2.5
Number of Oligochaeta Taxa	2	1	2	2	2	2	0.4
Number of "Other Group" Taxa	6	6	9	8	5	7	1.6
Standing Crop of Total Organisms	198366	213957	251226	206946	234043	220908	21465.7
Standing Crop of Ephemeroptera/Trichoptera	1183	172	753	581	172	572	425.9
Standing Crop of Chironomidae	33677	29763	48645	50344	46086	41703	9341.3
Standing Crop of "Other Arthropoda"	645	129	172	452	129	305	232.8
Standing Crop of Crustacea	153613	177419	189677	139613	181484	168361	20932.1
Standing Crop of Oligochaeta	4473	1806	5204	6538	1462	3897	2197.3
Standing Crop of Nematoda	2237	2151	1290	4903	2151	2546	1373.1
Standing Crop of "Other Group"	2538	2516	5484	4516	2559	3523	1391.5

SITE BAW6

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	34	38	38	44	45	40	4.6
Number of Ephemeroptera/Trichoptera Taxa	1	2	3	2	4	2	1.1
Number of Chironomidae Taxa	12	14	12	15	19	14	2.9
Number of "Other Arthropoda" Taxa	3	2	3	3	1	2	0.9
Number of Crustacea Taxa	12	12	13	15	12	13	1.3
Number of Oligochaeta Taxa	1	1	1	2	2	1	0.5
Number of "Other Group" Taxa	4	6	5	6	6	5	0.9
Standing Crop of Total Organisms	121204	197849	178968	237290	261355	199333	54333.5
Standing Crop of Ephemeroptera/Trichoptera	22	194	129	129	215	138	75.4
Standing Crop of Chironomidae	35957	41441	30688	45613	36065	37953	5726.4
Standing Crop of "Other Arthropoda"	172	237	473	538	22	288	214.3
Standing Crop of Crustacea	82086	148796	142301	181226	215226	153927	49561.5
Standing Crop of Oligochaeta	129	2710	903	4323	3484	2310	1755.3
Standing Crop of Nematoda	1290	2194	2602	3892	4323	2860	1242.9
Standing Crop of "Other Group"	1548	2280	1871	1570	2022	1858	309.6

Appendix E-2. ANOVA for benthic invertebrate variables for the Ash Lagoon Area, November 2002.

ONE-WAY ANOVA FOR TOTAL NUMBER OF TAXA BY AREA

```
SOURCE     DF        SS          MS          F        P
------    ----   ---------   ---------   ------   ------
BETWEEN     1     8.33333     8.33333     0.25   0.6253**
WITHIN     10     328.333     32.8333
TOTAL      11     336.667

                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    2.75      1     0.0970

COCHRAN'S Q                       0.8371
LARGEST VAR / SMALLEST VAR        5.1371

COMPONEN[illegible]F VARIANCE FOR BETWEEN GROUPS   -4.08333
EFFECTIVE CELL SIZE                                   6.0

                            SAMPLE      GROUP
   AREA           MEAN       SIZE      STD DEV
---------      ----------   ------   ----------
    1            41.167        6        7.4140
    2            39.500        6        3.2711
TOTAL            40.333       12        5.7300

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR NUMBER OF EPHEMEROPTERA/TRICHOPTERA TAXA BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.08333     0.08333     0.06   0.8174**
WITHIN     10     14.8333     1.48333
TOTAL      11     14.9167

                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    1.08      1     0.2977

COCHRAN'S Q                       0.7303
LARGEST VAR / SMALLEST VAR        2.7083

COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.23333
EFFECTIVE CELL SIZE                             6.0

                            SAMPLE      GROUP
   AREA           MEAN       SIZE      STD DEV
---------      ----------   ------   ----------
    1            3.1667        6        1.4720
    2            3.0000        6        0.8944
TOTAL            3.0833       12        1.2179

CASES INCLUDED 12    MISSING CASES 0
```

```
*    Significant at p < 0.05
**   Not Significant at p > 0.05
```

ONE-WAY ANOVA FOR NUMBER OF CHIRONOMIDAE TAXA BY AREA

```
SOURCE     DF       SS          MS          F        P
-------   ----  ---------   ---------   ------   ------
BETWEEN     1    2.08333     2.08333     0.38   0.5514**
WITHIN     10    54.8333     5.48333
TOTAL      11    56.9167

                        CHI-SQ     DF        P
BARTLETT'S TEST OF      ------   ------   ------
   EQUAL VARIANCES       3.77       1     0.0522

COCHRAN'S Q                         0.8754
LARGEST VAR / SMALLEST VAR          7.0244

COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.56667
EFFECTIVE CELL SIZE                             6.0

                            SAMPLE      GROUP
   AREA            MEAN      SIZE      STD DEV
---------      ----------   ------   ----------
    1            13.000        6         3.0984
    2            13.833        6         1.1690
TOTAL            13.417       12         2.3417

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR NUMBER OF CRUSTACEA TAXA BY AREA

```
SOURCE     DF       SS          MS          F        P
-------   ----  ---------   ---------   ------   ------
BETWEEN     1    6.75000     6.75000     3.72   0.0828**
WITHIN     10    18.1667     1.81667
TOTAL      11    24.9167

                        CHI-SQ     DF        P
BARTLETT'S TEST OF      ------   ------   ------
   EQUAL VARIANCES       0.85       1     0.3567

COCHRAN'S Q                         0.7064
LARGEST VAR / SMALLEST VAR          2.4062

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.82222
EFFECTIVE CELL SIZE                             6.0

                            SAMPLE      GROUP
   AREA            MEAN      SIZE      STD DEV
---------      ----------   ------   ----------
    1            13.833        6         1.6021
    2            12.333        6         1.0328
TOTAL            13.083       12         1.3478

CASES INCLUDED 12    MISSING CASES 0
```

```
*    Significant at p < 0.05
**   Not Significant at p > 0.05
```

ONE-WAY ANOVA FOR NUMBER OF OLIGOCHAETA TAXA BY AREA

```
SOURCE     DF       SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.33333     0.33333     1.25    0.2897**
WITHIN     10     2.66667     0.26667
TOTAL      11     3.00000

                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   0.00      1    1.0000

COCHRAN'S Q                      0.5000
LARGEST VAR / SMALLEST VAR       1.0000

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01111
EFFECTIVE CELL SIZE                             6.0

                         SAMPLE     GROUP
   AREA         MEAN      SIZE     STD DEV
---------    ----------  ------  ----------
    1          1.6667      6       0.5164
    2          1.3333      6       0.5164
TOTAL          1.5000     12       0.5164

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR NUMBER OF "OTHER GROUP" TAXA BY AREA

```
SOURCE     DF       SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     5.33333     5.33333     1.55    0.2410**
WITHIN     10     34.3333     3.43333
TOTAL      11     39.6667

                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   0.04      1    0.8356

COCHRAN'S Q                      0.5485
LARGEST VAR / SMALLEST VAR       1.2151

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.31667
EFFECTIVE CELL SIZE                             6.0

                         SAMPLE     GROUP
   AREA         MEAN      SIZE     STD DEV
---------    ----------  ------  ----------
    1          5.5000      6       1.7607
    2          4.1667      6       1.9408
TOTAL          4.8333     12       1.8529

CASES INCLUDED 12    MISSING CASES 0
```

```
*    Significant at p < 0.05
**   Not Significant at p > 0.05
```

Appendix E-2. (continued)

ONE-WAY ANOVA FOR TOTAL STANDING CROP (LOG) BY AREA

```
SOURCE     DF        SS           MS          F        P
-------   ----   ----------   ----------   ------   ------
BETWEEN     1     0.03140      0.03140      1.15    0.3086**
WITHIN     10     0.27289      0.02729
TOTAL      11     0.30430

                      CHI-SQ     DF        P
BARTLETT'S TEST OF    ------   ------   ------
   EQUAL VARIANCES     8.98       1     0.0027

COCHRAN'S Q                          0.9640
LARGEST VAR / SMALLEST VAR          26.780

COMPONENT OF VARIANCE FOR BETWEEN GROUPS  6.859E-04
EFFECTIVE CELL SIZE                             6.0

                                SAMPLE      GROUP
   AREA            MEAN          SIZE      STD DEV
---------       ----------      ------    ----------
    1             5.4821          6          0.0443
    2             5.3798          6          0.2294
TOTAL             5.4310         12          0.1652

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR EPEMEROPTERA/TRICHOPTEA STANDING CROP (LOG) BY AREA

```
SOURCE     DF        SS           MS          F        P
-------   ----   ----------   ----------   ------   ------
BETWEEN     1     0.07468      0.07468      0.89    0.3669**
WITHIN     10     0.83608      0.08361
TOTAL      11     0.91075

                      CHI-SQ     DF        P
BARTLETT'S TEST OF    ------   ------   ------
   EQUAL VARIANCES     0.49       1     0.4852

COCHRAN'S Q                          0.6594
LARGEST VAR / SMALLEST VAR           1.9359

COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00149
EFFECTIVE CELL SIZE                             6.0

                                SAMPLE      GROUP
   AREA            MEAN          SIZE      STD DEV
---------       ----------      ------    ----------
    1             2.7616          6          0.3321
    2             2.6038          6          0.2387
TOTAL             2.6827         12          0.2891

CASES INCLUDED 12    MISSING CASES 0
```

```
*    Significant at p < 0.05
**   Not Significant at p > 0.05
```

Appendix E-2. (continued)

ONE-WAY ANOVA FOR CHIRONOMIDAE STANDING CROP (LOG) BY AREA

```
SOURCE     DF       SS           MS          F        P
-------   ----  ---------    ---------   ------   ------
BETWEEN     1    0.49211      0.49211    36.77   0.0001*
WITHIN     10    0.13383      0.01338
TOTAL      11    0.62594

                     CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     1.53      1     0.2158

COCHRAN'S Q                     0.7674
LARGEST VAR / SMALLEST VAR      3.2998

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.07979
EFFECTIVE CELL SIZE                              6.0

                            SAMPLE     GROUP
   AREA          MEAN        SIZE     STD DEV
---------    ----------    ------   ----------
    1          5.0514        6        0.1433
    2          4.6463        6        0.0789
TOTAL          4.8489       12        0.1157

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR "OTHER ARTHROPODA" STANDING CROP (LOG) BY AREA

```
SOURCE     DF       SS           MS          F        P
-------   ----  ---------    ---------   ------   ------
BETWEEN     1    0.13178      0.13178     1.78   0.2113**
WITHIN     10    0.73897      0.07390
TOTAL      11    0.87075

                     CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     0.30      1     0.5855

COCHRAN'S Q                     0.6258
LARGEST VAR / SMALLEST VAR      1.6725

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.00965
EFFECTIVE CELL SIZE                              6.0

                            SAMPLE     GROUP
   AREA          MEAN        SIZE     STD DEV
---------    ----------    ------   ----------
    1          2.9314        6        0.3041
    2          2.7218        6        0.2352
TOTAL          2.8266       12        0.2718

CASES INCLUDED 12    MISSING CASES 0
```

---

*   Significant at $p < 0.05$

**   Not Significant at $p > 0.05$

```
ONE-WAY ANOVA FOR CRUSTACEA STANDING CROP (LOG) BY AREA

SOURCE     DF       SS          MS          F        P
-------   ----  ---------   ---------   ------   ------
BETWEEN     1    0.00927     0.00927     0.22    0.6524**
WITHIN     10    0.43027     0.04303
TOTAL      11    0.43954

                       CHI-SQ     DF        P
BARTLETT'S TEST OF     ------   ------   ------
   EQUAL VARIANCES      5.03       1     0.0250

COCHRAN'S Q                       0.9090
LARGEST VAR / SMALLEST VAR        9.9851

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    -0.00563
EFFECTIVE CELL SIZE                              6.0

                                  SAMPLE     GROUP
   AREA            MEAN            SIZE     STD DEV
---------       ----------       ------   ----------
    1             5.2044            6        0.0885
    2             5.2600            6        0.2797
TOTAL             5.2322           12        0.2074

CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY ANOVA FOR OLIGOCHAETA STANDING CROP (LOG) BY AREA

SOURCE     DF       SS          MS          F        P
-------   ----  ---------   ---------   ------   ------
BETWEEN     1    0.19694     0.19694     7.47    0.0211*
WITHIN     10    0.26348     0.02635
TOTAL      11    0.46042

                       CHI-SQ     DF        P
BARTLETT'S TEST OF     ------   ------   ------
   EQUAL VARIANCES      1.45       1     0.2278

COCHRAN'S Q                       0.7616
LARGEST VAR / SMALLEST VAR        3.1955

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.02843
EFFECTIVE CELL SIZE                              6.0

                                  SAMPLE     GROUP
   AREA            MEAN            SIZE     STD DEV
---------       ----------       ------   ----------
    1             3.5577            6        0.1121
    2             3.3015            6        0.2003
TOTAL             3.4296           12        0.1623

CASES INCLUDED 12    MISSING CASES 0
```

```
*     Significant at p < 0.05
**    Not Significant at p > 0.05
```

Appendix E-2. (concluded)

ONE-WAY ANOVA FOR NEMATODA STANDING CROP (LOG) BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     1.48096     1.48096     23.42   0.0007
WITHIN     10     0.63227     0.06323
TOTAL      11     2.11323

                          CHI-SQ     DF        P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES         0.37       1     0.5425

COCHRAN'S Q                          0.6400
LARGEST VAR / SMALLEST VAR           1.7776

COMPONENT OF VARIANCE FOR BETWEEN GROUPS      0.23629
EFFECTIVE CELL SIZE                               6.0

                                SAMPLE      GROUP
   AREA            MEAN          SIZE      STD DEV
---------       ----------      ------    ----------
    1             4.0488           6        0.2845
    2             3.3462           6        0.2134
TOTAL             3.6975          12        0.2515

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR "OTHER GROUP" STANDING CROP (LOG) BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.35508     0.35508      3.97   0.0743**
WITHIN     10     0.89455     0.08946
TOTAL      11     1.24964

                          CHI-SQ     DF        P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES         0.00       1     0.9561

COCHRAN'S Q                          0.5129
LARGEST VAR / SMALLEST VAR           1.0530

COMPONENT OF VARIANCE FOR BETWEEN GROUPS      0.04427
EFFECTIVE CELL SIZE                               6.0

                                SAMPLE      GROUP
   AREA            MEAN          SIZE      STD DEV
---------       ----------      ------    ----------
    1             3.6216           6        0.2952
    2             3.2775           6        0.3029
TOTAL             3.4496          12        0.2991

CASES INCLUDED 12    MISSING CASES 0
```

```
*    Significant at p < 0.05
**   Not Significant at p > 0.05
```

Appendix E-3. Basic computations for numbers of taxa and standing crops (number/m^2) with standard deviation (SD) for the Wabamun Lake Water Treatment Plant Area, November 2002.

SITE WDC

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	39	41	38	35	33	37	3.2
Number of Ephemeroptera/Trichoptera Taxa	5	7	4	4	5	5	1.2
Number of Chironomidae Taxa	11	11	10	9	7	10	1.7
Number of "Other Arthropoda" Taxa	3	5	3	1	3	3	1.4
Number of Crustacea Taxa	8	9	10	10	9	9	0.8
Number of Oligochaeta Taxa	2	2	2	2	1	2	0.4
Number of "Other Group" Taxa	9	6	8	8	7	8	1.1
Standing Crop of Total Organisms	141828	229355	245871	211140	156946	197028	45506.6
Standing Crop of Ephemeroptera/Trichoptera	387	495	731	1204	1226	809	391.4
Standing Crop of Chironomidae	20817	20344	25011	49333	41484	31398	13213.1
Standing Crop of "Other Arthropoda"	2387	2538	2280	151	1204	1712	1019.3
Standing Crop of Crustacea	27742	78925	99806	100667	60817	73591	30471.7
Standing Crop of Oligochaeta	25290	23011	32473	6753	9677	19441	10875.6
Standing Crop of Nematoda	61333	92516	75269	43011	36581	61742	22989.9
Standing Crop of "Other Group"	3871	11527	10301	10022	5957	8335	3258.8

SITE WW1

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	33	29	28	34	36	32	3.4
Number of Ephemeroptera/Trichoptera Taxa	4	4	3	3	3	3	0.5
Number of Chironomidae Taxa	10	8	9	9	10	9	0.8
Number of "Other Arthropoda" Taxa	3	2	2	2	2	2	0.4
Number of Crustacea Taxa	8	8	7	11	11	9	1.9
Number of Oligochaeta Taxa	2	1	2	1	2	2	0.5
Number of "Other Group" Taxa	5	5	4	7	7	6	1.3
Standing Crop of Total Organisms	142796	124108	127720	103699	297183	159101	78439.7
Standing Crop of Ephemeroptera/Trichoptera	1118	1011	1118	1054	258	912	368.3
Standing Crop of Chironomidae	10194	7312	7914	25333	17075	13566	7635.7
Standing Crop of "Other Arthropoda"	903	1806	1054	3634	258	1531	1298.3
Standing Crop of Crustacea	84237	48473	68430	49828	222903	94774	73119.9
Standing Crop of Oligochaeta	10301	11548	16301	3699	22946	12959	7171.4
Standing Crop of Nematoda	30968	44731	25871	17204	29247	29604	9981.3
Standing Crop of "Other Group"	5075	9226	7032	2946	4495	5755	2429.9

Appendix E-3. **(continued)**

SITE WW2

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	35	38	38	34	42	37	3.1
Number of Ephemeroptera/Trichoptera Taxa	5	7	7	4	7	6	1.4
Number of Chironomidae Taxa	10	11	8	9	13	10	1.9
Number of "Other Arthropoda" Taxa	2	2	2	3	3	2	0.5
Number of Crustacea Taxa	8	7	11	11	9	9	1.8
Number of Oligochaeta Taxa	2	2	2	2	2	2	0.0
Number of "Other Group" Taxa	7	8	7	4	7	7	1.5
Standing Crop of Total Organisms	175204	185247	167849	122710	126774	155557	28835.9
Standing Crop of Ephemeroptera/Trichoptera	1097	1140	1183	1871	280	1114	564.6
Standing Crop of Chironomidae	9613	10043	6688	5699	8581	8125	1874.2
Standing Crop of "Other Arthropoda"	1097	2688	3613	1828	4473	2740	1351.0
Standing Crop of Crustacea	110796	112452	107247	83742	60215	94890	22587.3
Standing Crop of Oligochaeta	21957	21505	18645	8301	15892	17260	5570.8
Standing Crop of Nematoda	19097	26688	13763	12108	15570	17445	5781.9
Standing Crop of "Other Group"	11548	10731	16710	9161	21763	13983	5189.4

SITE WW3

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	26	32	32	30	39	32	4.7
Number of Ephemeroptera/Trichoptera Taxa	2	3	4	4	4	3	0.9
Number of Chironomidae Taxa	9	11	11	10	14	11	1.9
Number of "Other Arthropoda" Taxa	1	1	4	2	2	2	1.2
Number of Crustacea Taxa	9	10	5	7	10	8	2.2
Number of Oligochaeta Taxa	2	2	2	1	2	2	0.4
Number of "Other Group" Taxa	2	4	5	5	6	4	1.5
Standing Crop of Total Organisms	91226	59032	113978	68946	187140	104065	51053.4
Standing Crop of Ephemeroptera/Trichoptera	86	108	151	129	387	172	122.6
Standing Crop of Chironomidae	13290	11978	25785	12108	46495	21931	14903.3
Standing Crop of "Other Arthropoda"	903	538	3677	2710	3656	2297	1496.7
Standing Crop of Crustacea	28430	23333	48581	21333	95742	43484	31145.6
Standing Crop of Oligochaeta	33763	10172	22409	13849	21957	20430	9118.1
Standing Crop of Nematoda	13763	11204	8624	15505	11247	12069	2644.5
Standing Crop of "Other Group"	989	1699	4753	3312	7656	3682	2658.0

Appendix E-3. (continued)

SITE WW4

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	44	42	44	37	42	42	2.9
Number of Ephemeroptera/Trichoptera Taxa	8	4	5	3	4	5	1.9
Number of Chironomidae Taxa	13	14	15	11	13	13	1.5
Number of "Other Arthropoda" Taxa	3	2	1	2	1	2	0.8
Number of Crustacea Taxa	10	11	12	12	12	11	0.9
Number of Oligochaeta Taxa	2	2	2	2	2	2	0.0
Number of "Other Group" Taxa	7	8	8	6	9	8	1.1
Standing Crop of Total Organisms	263097	271871	264366	211204	296968	261501	31248.7
Standing Crop of Ephemeroptera/Trichoptera	366	151	215	129	172	206	94.5
Standing Crop of Chironomidae	11462	15398	15161	8065	10602	12138	3129.5
Standing Crop of "Other Arthropoda"	1957	3462	151	86	43	1140	1529.2
Standing Crop of Crustacea	142194	153462	138366	112710	172774	143901	21974.6
Standing Crop of Oligochaeta	8065	10366	7957	8667	9914	8994	1092.5
Standing Crop of Nematoda	91226	67978	72301	63720	82581	75561	11213.6
Standing Crop of "Other Group"	7828	21054	30215	17828	20882	19561	8033.5

SITE WW5

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	33	36	39	39	36	37	2.5
Number of Ephemeroptera/Trichoptera Taxa	5	3	4	4	3	4	0.8
Number of Chironomidae Taxa	8	11	10	12	11	10	1.5
Number of "Other Arthropoda" Taxa	1	2	3	3	2	2	0.8
Number of Crustacea Taxa	9	10	13	10	9	10	1.6
Number of Oligochaeta Taxa	2	3	2	2	3	2	0.5
Number of "Other Group" Taxa	7	6	6	7	7	7	0.5
Standing Crop of Total Organisms	191634	235032	337505	242065	172581	235763	63896.6
Standing Crop of Ephemeroptera/Trichoptera	237	151	151	280	172	198	57.7
Standing Crop of Chironomidae	3677	8022	7376	13677	9183	8387	3604.1
Standing Crop of "Other Arthropoda"	22	882	65	108	903	396	454.6
Standing Crop of Crustacea	137591	200280	296538	178753	131806	188994	66540.4
Standing Crop of Oligochaeta	11505	7957	4495	14086	14022	10413	4146.2
Standing Crop of Nematoda	21505	11183	18065	24086	8602	16688	6624.2
Standing Crop of "Other Group"	17097	6559	10817	11075	7892	10688	4065.1

Appendix E-3. (continued)

SITE WW6

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	24	27	19	30	30	26	4.6
Number of Ephemeroptera/Trichoptera Taxa	2	3	1	5	3	3	1.5
Number of Chironomidae Taxa	7	6	5	11	11	8	2.8
Number of "Other Arthropoda" Taxa	1	2	2	0	2	1	0.9
Number of Crustacea Taxa	7	8	6	7	7	7	0.7
Number of Oligochaeta Taxa	2	2	1	2	2	2	0.4
Number of "Other Group" Taxa	4	5	3	4	4	4	0.7
Standing Crop of Total Organisms	396667	815935	527097	254194	493828	497544	207156.9
Standing Crop of Ephemeroptera/Trichoptera	215	172	43	1376	4387	1239	1840.3
Standing Crop of Chironomidae	8774	6452	2516	18602	15570	10383	6602.8
Standing Crop of "Other Arthropoda"	22	151	108	0	65	69	61.6
Standing Crop of Crustacea	335785	784860	498409	184344	376430	435966	225011.4
Standing Crop of Oligochaeta	6065	5183	86	12989	21591	9183	8320.7
Standing Crop of Nematoda	40430	12925	17226	24731	45204	28103	14181.6
Standing Crop of "Other Group"	5376	6194	8710	12151	30581	12602	10390.7

SITE BWW1

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	36	41	32	42	41	38	4.3
Number of Ephemeroptera/Trichoptera Taxa	1	1	2	2	2	2	0.5
Number of Chironomidae Taxa	11	13	8	15	11	12	2.6
Number of "Other Arthropoda" Taxa	5	4	2	3	4	4	1.1
Number of Crustacea Taxa	12	13	12	12	15	13	1.3
Number of Oligochaeta Taxa	1	2	1	2	2	2	0.5
Number of "Other Group' Taxa	5	7	6	7	6	6	0.8
Standing Crop of Total Organisms	135462	183398	155355	163097	167613	160985	17562.9
Standing Crop of Ephemeroptera/Trichoptera	882	452	667	473	452	585	189.0
Standing Crop of Chironomidae	59097	77828	59290	36301	42516	55006	16292.7
Standing Crop of "Other Arthropoda"	2000	2194	645	839	2172	1570	762.6
Standing Crop of Crustacea	52710	71806	65226	105591	98667	78800	22507.4
Standing Crop of Oligochaeta	1720	4301	1720	2581	3032	2671	1072.7
Standing Crop of Nematoda	16344	24946	24946	12065	15914	18843	5815.3
Standing Crop of "Other Group"	2710	1871	2860	5247	4860	3510	1465.5

Appendix E-3. (continued)

SITE BWW2

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	34	35	30	31	27	31	3.2
Number of Ephemeroptera/Trichoptera Taxa	3	2	4	3	2	3	0.8
Number of Chironomidae Taxa	9	11	8	9	8	9	1.2
Number of "Other Arthropoda" Taxa	5	4	3	5	3	4	1.0
Number of Crustacea Taxa	14	13	12	11	11	12	1.3
Number of Oligochaeta Taxa	0	1	1	1	1	1	0.4
Number of "Other Group" Taxa	2	3	1	1	1	2	0.9
Standing Crop of Total Organisms	217892	330258	219957	167548	178581	222847	64396.2
Standing Crop of Ephemeroptera/Trichoptera	2215	495	1183	108	1785	1157	873.9
Standing Crop of Chironomidae	83613	70903	87032	74860	53957	74073	12983.4
Standing Crop of "Other Arthropoda"	3892	1161	1333	1054	1914	1871	1177.8
Standing Crop of Crustacea	101634	233247	101699	68172	102624	121475	64176.3
Standing Crop of Oligochaeta	0	4323	3462	3462	1763	2602	1725.9
Standing Crop of Nematoda	24946	18086	24946	15484	16344	19961	4646.2
Standing Crop of "Other Group"	1591	2043	301	4409	194	1708	1709.7

SITE BWW3

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	34	33	33	33	34	33	0.5
Number of Ephemeroptera/Trichoptera Taxa	2	1	2	2	2	2	0.4
Number of Chironomidae Taxa	9	8	8	8	11	9	1.3
Number of "Other Arthropoda" Taxa	4	4	4	5	4	4	0.4
Number of Crustacea Taxa	13	12	13	12	11	12	0.8
Number of Oligochaeta Taxa	1	1	2	1	1	1	0.4
Number of "Other Group" Taxa	4	6	3	4	4	4	1.1
Standing Crop of Total Organisms	140151	173183	285849	228172	157935	197058	59563.1
Standing Crop of Ephemeroptera/Trichoptera	1054	86	1075	2753	151	1024	1076.4
Standing Crop of Chironomidae	58194	61957	103763	87677	55527	73424	21256.8
Standing Crop of "Other Arthropoda"	3290	4237	1742	2946	2753	2994	902.8
Standing Crop of Crustacea	64495	87634	142581	100710	72452	93574	30739.3
Standing Crop of Oligochaeta	3075	5226	6968	5204	6065	5308	1443.1
Standing Crop of Nematoda	6452	7742	21527	27527	15527	15755	8982.0
Standing Crop of "Other Group"	3591	6301	8194	1355	5462	4981	2616.0

Appendix E-3. (continued)

SITE BWW4

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	34	28	31	26	31	30	3.1
Number of Ephemeroptera/Trichoptera Taxa	2	2	1	1	3	2	0.8
Number of Chironomidae Taxa	10	8	12	9	9	10	1.5
Number of "Other Arthropoda" Taxa	6	3	4	4	4	4	1.1
Number of Crustacea Taxa	11	10	10	8	10	10	1.1
Number of Oligochaeta Taxa	2	1	1	1	1	1	0.4
Number of "Other Group" Taxa	2	3	2	2	3	2	0.5
Standing Crop of Total Organisms	115312	116581	166860	144000	155570	139665	23115.5
Standing Crop of Ephemeroptera/Trichoptera	1441	882	882	86	968	852	487.0
Standing Crop of Chironomidae	49634	57247	61075	55484	89720	62632	15694.2
Standing Crop of "Other Arthropoda"	1312	688	3355	2538	925	1763	1139.7
Standing Crop of Crustacea	48903	51333	83484	58946	48366	58206	14749.0
Standing Crop of Oligochaeta	3075	1312	1720	7742	1720	3114	2671.7
Standing Crop of Nematoda	9892	3032	12903	18086	12043	11191	5464.7
Standing Crop of "Other Group"	1054	2086	3441	1118	1828	1905	967.1

SITE BWW5

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	39	38	33	34	32	35	3.1
Number of Ephemeroptera/Trichoptera Taxa	3	2	2	3	3	3	0.5
Number of Chironomidae Taxa	11	11	8	8	9	9	1.5
Number of "Other Arthropoda" Taxa	5	3	2	3	4	3	1.1
Number of Crustacea Taxa	14	13	12	13	11	13	1.1
Number of Oligochaeta Taxa	2	2	2	2	1	2	0.4
Number of "Other Group" Taxa	3	6	6	4	3	4	1.5
Standing Crop of Total Organisms	373097	284194	230860	316108	233462	287544	59758.4
Standing Crop of Ephemeroptera/Trichoptera	1333	1871	1032	1140	3806	1837	1147.5
Standing Crop of Chironomidae	106796	127570	80387	91978	77742	96895	20630.7
Standing Crop of "Other Arthropoda"	1656	2237	2043	5914	1677	2705	1810.5
Standing Crop of Crustacea	234409	124581	98000	196108	130086	156637	56518.2
Standing Crop of Oligochaeta	5247	4366	6925	6903	3505	5389	1522.1
Standing Crop of Nematoda	19785	17204	24968	10344	12903	17041	5752.4
Standing Crop of "Other Group"	3871	6366	17505	3720	3742	7041	5956.5

Appendix E-3. **(concluded)**

SITE BWW6

VARIABLE	Sample					MEAN	SD
	1	2	3	4	5		
Number of Total Taxa	36	36	33	36	31	34	2.3
Number of Ephemeroptera/Trichoptera Taxa	2	3	1	2	1	2	0.8
Number of Chironomidae Taxa	12	14	9	10	11	11	1.9
Number of "Other Arthropoda" Taxa	5	4	4	5	3	4	0.8
Number of Crustacea Taxa	10	9	10	12	9	10	1.2
Number of Oligochaeta Taxa	1	2	1	2	2	2	0.5
Number of "Other Group" Taxa	5	3	7	4	4	5	1.5
Standing Crop of Total Organisms	199441	246237	128258	284215	222151	216060	58262.8
Standing Crop of Ephemeroptera/Trichoptera	43	129	22	1075	22	258	459.0
Standing Crop of Chironomidae	51226	61570	46882	97419	90043	69428	22966.8
Standing Crop of "Other Arthropoda"	1312	3097	667	3957	1118	2030	1419.2
Standing Crop of Crustacea	117097	144538	67290	165075	109828	120766	37152.2
Standing Crop of Oligochaeta	4366	6065	3441	6925	5161	5191	1370.6
Standing Crop of Nematoda	6022	10323	5183	5161	10323	7402	2688.4
Standing Crop of "Other Group"	19376	20516	4774	4602	5656	10985	8200.2

Appendix E-4. ANOVA for benthic invertebrate variables for the Wabamun Lake Water Treatment Plant Area, November 2002.

ONE-WAY ANOVA FOR TOTAL NUMBER OF TAXA BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     2.08333     2.08333     0.11   0.7504**
WITHIN     10     194.833     19.4833
TOTAL      11     196.917

                        CHI-SQ     DF       P
BARTLETT'S TEST OF      ------   ------   ------
   EQUAL VARIANCES        1.82       1    0.1777

COCHRAN'S Q                         0.7870
LARGEST VAR / SMALLEST VAR          3.6948

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    -2.90000
EFFECTIVE CELL SIZE                              6.0

                              SAMPLE      GROUP
   AREA           MEAN         SIZE      STD DEV
---------     ----------     ------    ----------
    1            34.333         6         5.5377
    2            33.500         6         2.8810
TOTAL            33.917        12         4.4140

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR NUMBER OF EPHEMEROPTERA/TRICHOPTERA TAXA BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     8.33333     8.33333     8.93   0.0136*
WITHIN     10     9.33333     0.93333
TOTAL      11     17.6667

                        CHI-SQ     DF       P
BARTLETT'S TEST OF      ------   ------   ------
   EQUAL VARIANCES        3.24       1    0.0717

COCHRAN'S Q                         0.8571
LARGEST VAR / SMALLEST VAR          6.0000

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     1.23333
EFFECTIVE CELL SIZE                              6.0

                              SAMPLE      GROUP
   AREA           MEAN         SIZE      STD DEV
---------     ----------     ------    ----------
    1            4.0000         6         1.2649
    2            2.3333         6         0.5164
TOTAL            3.1667        12         0.9661

CASES INCLUDED 12    MISSING CASES 0
```

```
*    Significant at p < 0.05
**   Not Significant at p > 0.05
```

Appendix E-4. (continued)

ONE-WAY ANOVA FOR NUMBER OF CHIRONOMIDAE TAXA BY AREA

```
SOURCE     DF        SS           MS          F        P
-------   ----   ---------    ---------    ------   ------
BETWEEN     1      0.08333      0.08333     0.04    0.8523**
WITHIN     10      22.8333      2.28333
TOTAL      11      22.9167

                      CHI-SQ     DF        P
BARTLETT'S TEST OF    ------   ------   ------
   EQUAL VARIANCES     0.43       1     0.5137

COCHRAN'S Q                     0.6496
LARGEST VAR / SMALLEST VAR      1.8542

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    -0.36667
EFFECTIVE CELL SIZE                              6.0

                               SAMPLE      GROUP
   AREA             MEAN        SIZE      STD DEV
---------       ----------     ------   ----------
    1             10.167         6        1.7224
    2             10.000         6        1.2649
TOTAL             10.083        12        1.5111

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR NUMBER OF "OTHER ARTHROPODA" TAXA BY AREA

```
SOURCE     DF        SS           MS          F        P
-------   ----   ---------    ---------    ------   ------
BETWEEN     1      12.0000      12.0000     72.00   0.0000*
WITHIN     10      1.66667      0.16667
TOTAL      11      13.6667

                      CHI-SQ     DF        P
BARTLETT'S TEST OF    ------   ------   ------
   EQUAL VARIANCES     0.00       1     1.0000

COCHRAN'S Q                     0.5000
LARGEST VAR / SMALLEST VAR      1.0000

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     1.97222
EFFECTIVE CELL SIZE                              6.0

                               SAMPLE      GROUP
   AREA             MEAN        SIZE      STD DEV
---------       ----------     ------   ----------
    1             1.8333         6        0.4082
    2             3.8333         6        0.4082
TOTAL             2.8333        12        0.4082

CASES INCLUDED 12    MISSING CASES 0
```

*   Significant at $p < 0.05$

**   Not Significant at $p > 0.05$

ONE-WAY ANOVA FOR NUMBER OF CRUSTACEA TAXA BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------    ------   ------
BETWEEN     1     21.3333     21.3333     11.03    0.0077*
WITHIN     10     19.3333     1.93333
TOTAL      11     40.6667

                         CHI-SQ     DF        P
BARTLETT'S TEST OF       ------   ------   ------
   EQUAL VARIANCES        0.01       1     0.9414

COCHRAN'S Q                         0.5172
LARGEST VAR / SMALLEST VAR          1.0714

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     3.23333
EFFECTIVE CELL SIZE                              6.0

                           SAMPLE      GROUP
   AREA          MEAN       SIZE      STD DEV
---------     ----------   ------   ----------
    1           9.0000       6        1.4142
    2           11.667       6        1.3663
TOTAL           10.333      12        1.3904

CASES INCLUDED 12     MISSING CASES 0
```

ONE-WAY ANOVA FOR NUMBER OF OLIGOCHAETA TAXA BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------    ------   ------
BETWEEN     1     0.75000     0.75000      5.00    0.0493*
WITHIN     10     1.50000     0.15000
TOTAL      11     2.25000

AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.10000
EFFECTIVE CELL SIZE                              6.0

                           SAMPLE      GROUP
   AREA          MEAN       SIZE      STD DEV
---------     ----------   ------   ----------
    1           2.0000       6        0.0000
    2           1.5000       6        0.5477
TOTAL           1.7500      12        0.3873

CASES INCLUDED 12     MISSING CASES 0
```

---

* Significant at $p < 0.05$

** Not Significant at $p > 0.05$

```
ONE-WAY ANOVA FOR NUMBER OF "OTHER GROUP" TAXA BY AREA

SOURCE     DF      SS          MS           F        P
-------   ----  ---------   ---------    ------   ------
BETWEEN     1    14.0833     14.0833      5.25    0.0449*
WITHIN     10    26.8333     2.68333
TOTAL      11    40.9167

                      CHI-SQ     DF        P
BARTLETT'S TEST OF    ------   ------   ------
   EQUAL VARIANCES     0.01       1     0.9261

COCHRAN'S Q                       0.5217
LARGEST VAR / SMALLEST VAR        1.0909

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     1.90000
EFFECTIVE CELL SIZE                              6.0

                            SAMPLE      GROUP
   AREA          MEAN        SIZE      STD DEV
---------     ----------    ------   ----------
    1           6.0000        6        1.6733
    2           3.8333        6        1.6021
TOTAL           4.9167       12        1.6381

CASES INCLUDED 12    MISSING CASES 0
```

---

*   Significant at $p < 0.05$

**   Not Significant at $p > 0.05$

ONE-WAY ANOVA FOR TOTAL STANDING CROP (LOG) BY AREA

```
SOURCE     DF        SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN     1    0.00101     0.00101     0.03   0.8664**
WITHIN     10    0.33759     0.03376
TOTAL      11    0.33860

                          CHI-SQ      DF         P
BARTLETT'S TEST OF        ------    ------    ------
   EQUAL VARIANCES          2.36        1     0.1245

COCHRAN'S Q                          0.8182
LARGEST VAR / SMALLEST VAR           4.5002

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    -0.00546
EFFECTIVE CELL SIZE                              6.0

                            SAMPLE      GROUP
   AREA            MEAN      SIZE      STD DEV
---------      ----------   ------   ----------
    1            5.3163        6        0.2350
    2            5.2980        6        0.1108
TOTAL            5.3071       12        0.1837

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR EPEMEROPTERA/TRICHOPTEA STANDING CROP (LOG) BY AREA

```
SOURCE     DF        SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN     1    0.18774     0.18774     1.46   0.2550**
WITHIN     10    1.28733     0.12873
TOTAL      11    1.47507

                          CHI-SQ      DF         P
BARTLETT'S TEST OF        ------    ------    ------
   EQUAL VARIANCES          0.54        1     0.4622

COCHRAN'S Q                          0.6674
LARGEST VAR / SMALLEST VAR           2.0068

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.00983
EFFECTIVE CELL SIZE                              6.0

                            SAMPLE      GROUP
   AREA            MEAN      SIZE      STD DEV
---------      ----------   ------   ----------
    1            2.6577        6        0.4145
    2            2.9078        6        0.2926
TOTAL            2.7827       12        0.3588

CASES INCLUDED 12    MISSING CASES 0
```

*   Significant at $p < 0.05$
**   Not Significant at $p > 0.05$

ONE-WAY ANOVA FOR CHIRONOMIDAE STANDING CROP (LOG) BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     1.83546     1.83546    113.55   0.0000*
WITHIN     10     0.16164     0.01616
TOTAL      11     1.99710

                     CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     1.85       1     0.1742

COCHRAN'S Q                       0.7889
LARGEST VAR / SMALLEST VAR        3.7364

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.30322
EFFECTIVE CELL SIZE                             6.0

                              SAMPLE      GROUP
   AREA             MEAN       SIZE      STD DEV
---------       ----------   ------   ----------
    1             4.0679        6         0.1597
    2             4.8501        6         0.0826
TOTAL             4.4590       12         0.1271

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR "OTHER ARTHROPODA" STANDING CROP (LOG) BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.50135     0.50135      2.66   0.1339**
WITHIN     10     1.88438     0.18844
TOTAL      11     2.38573

                     CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     9.49       1     0.0021

COCHRAN'S Q                       0.9680
LARGEST VAR / SMALLEST VAR        30.265

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.05215
EFFECTIVE CELL SIZE                             6.0

                              SAMPLE      GROUP
   AREA             MEAN       SIZE      STD DEV
---------       ----------   ------   ----------
    1             2.9129        6         0.6040
    2             3.3217        6         0.1098
TOTAL             3.1173       12         0.4341

CASES INCLUDED 12    MISSING CASES 0
```

```
*    Significant at p < 0.05
**   Not Significant at p > 0.05
```

Appendix E-4. (continued)

ONE-WAY ANOVA FOR CRUSTACEA STANDING CROP (LOG) BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.03766     0.03766     0.55   0.4760**
WITHIN     10     0.68681     0.06868
TOTAL      11     0.72447

                       CHI-SQ     DF        P
BARTLETT'S TEST OF    ------   ------   ------
   EQUAL VARIANCES     2.54       1     0.1108

COCHRAN'S Q                        0.8273
LARGEST VAR / SMALLEST VAR         4.7905

COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00517
EFFECTIVE CELL SIZE                             6.0

                            SAMPLE     GROUP
   AREA           MEAN       SIZE     STD DEV
---------      ----------   ------   ----------
    1            5.1110        6        0.3371
    2            4.9990        6        0.1540
TOTAL            5.0550       12        0.2621

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR OLIGOCHAETA STANDING CROP (LOG) BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.79434     0.79434    34.49   0.0002*
WITHIN     10     0.23032     0.02303
TOTAL      11     1.02466

                       CHI-SQ     DF        P
BARTLETT'S TEST OF    ------   ------   ------
   EQUAL VARIANCES     0.01       1     0.9245

COCHRAN'S Q                        0.5222
LARGEST VAR / SMALLEST VAR         1.0930

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.12855
EFFECTIVE CELL SIZE                             6.0

                            SAMPLE     GROUP
   AREA           MEAN       SIZE     STD DEV
---------      ----------   ------   ----------
    1            4.0991        6        0.1484
    2            3.5845        6        0.1551
TOTAL            3.8418       12        0.1518

CASES INCLUDED 12    MISSING CASES 0
```

```
*    Significant at p < 0.05
**   Not Significant at p > 0.05
```

Appendix E-4. (concluded)

ONE-WAY ANOVA FOR NEMATODA STANDING CROP (LOG) BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.16843     0.16843     3.18    0.1049**
WITHIN     10     0.52967     0.05297
TOTAL      11     0.69811

                         CHI-SQ     DF        P
BARTLETT'S TEST OF       ------   ------   ------
   EQUAL VARIANCES        1.23       1     0.2680

COCHRAN'S Q                          0.7432
LARGEST VAR / SMALLEST VAR           2.8942

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.01924
EFFECTIVE CELL SIZE                              6.0

                                SAMPLE      GROUP
   AREA               MEAN       SIZE      STD DEV
---------         ----------   ------   ----------
    1               4.3907        6        0.2806
    2               4.1537        6        0.1649
TOTAL               4.2722       12        0.2301

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR "OTHER GROUP" STANDING CROP (LOG) BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.42151     0.42151     4.87    0.0519**
WITHIN     10     0.86627     0.08663
TOTAL      11     1.28778

                         CHI-SQ     DF        P
BARTLETT'S TEST OF       ------   ------   ------
   EQUAL VARIANCES        0.13       1     0.7205

COCHRAN'S Q                          0.5833
LARGEST VAR / SMALLEST VAR           1.3999

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.05581
EFFECTIVE CELL SIZE                              6.0

                                SAMPLE      GROUP
   AREA               MEAN       SIZE      STD DEV
---------         ----------   ------   ----------
    1               3.9821        6        0.2687
    2               3.6072        6        0.3179
TOTAL               3.7947       12        0.2943

CASES INCLUDED 12    MISSING CASES 0
```

```
*     Significant at p < 0.05
**    Not Significant at p > 0.05
```

APPENDIX F

BENTHIC INVERTEBRATE DCA RESULTS, NOVEMBER 2002

Appendix F-1. Detrended correspondence analysis results for the Ash Lagoon area, November 2002.

```
**************** Detrended Correspondence Analysis (DCA) ***************
PC-ORD, Version 4.20
17 Sep 2003, 17:33

Wabamun Lake Ash Lagoon Results Nov 2002
Number of non-zero data items:     2668

No downweighting
Axes are rescaled
Number of segments: 30
Threshold:  0.00


Total variance ("inertia") in the species data:   2.2164


                  ---------- Axis 1 ----------

 0.2424179316 = residual at iteration   0
 0.0190188959 = residual at iteration   1
 0.0003596555 = residual at iteration   2
 0.0000061212 = residual at iteration   3
 0.0000002785 = residual at iteration   4
 0.3006690443 = residual at iteration   5
 0.0005756677 = residual at iteration   6
 0.0000034322 = residual at iteration   7
 0.0000002197 = residual at iteration   8
 0.3206291497 = residual at iteration   9
 0.0042086858 = residual at iteration  10
 0.0000723949 = residual at iteration  11
 0.0000008888 = residual at iteration  12
 0.0000002020 = residual at iteration  13
 0.2625548840 = residual at iteration  14
 0.0072722426 = residual at iteration  15
 0.0001260005 = residual at iteration  16
 0.0000026354 = residual at iteration  17
 0.0000002285 = residual at iteration  18
 0.2309496850 = residual at iteration  19
 0.0046520401 = residual at iteration  20
 0.0000953186 = residual at iteration  21
 0.0000017380 = residual at iteration  22
 0.0000001488 = residual at iteration  23
 0.3117583394 = residual at iteration  24
 0.0076919380 = residual at iteration  25
 0.0001539276 = residual at iteration  26
 0.0000026467 = residual at iteration  27
 0.0000002096 = residual at iteration  28
 0.3074325025 = residual at iteration  29
 0.0058391723 = residual at iteration  30
 0.0001122919 = residual at iteration  31
 0.0000016006 = residual at iteration  32
```

```
0.0000001948 = residual at iteration  33
0.2887910604 = residual at iteration  34
0.0047248928 = residual at iteration  35
0.0000721358 = residual at iteration  36
0.0000010142 = residual at iteration  37
0.0000001971 = residual at iteration  38
0.2590767145 = residual at iteration  39
0.0098489607 = residual at iteration  40
0.0001827470 = residual at iteration  41
0.0000038900 = residual at iteration  42
0.0000001911 = residual at iteration  43
0.2825307250 = residual at iteration  44
0.0087969210 = residual at iteration  45
0.0001712887 = residual at iteration  46
0.0000036222 = residual at iteration  47
0.0000001884 = residual at iteration  48
0.2788565159 = residual at iteration  49
0.0109406961 = residual at iteration  50
0.0066493624 = residual at iteration  60
0.0000366366 = residual at iteration  70
0.0001550088 = residual at iteration  80
0.0002399732 = residual at iteration  90
0.0000045965 = residual at iteration 100
0.0000018758 = residual at iteration 110
0.0000005058 = residual at iteration 120
0.0000001930 = residual at iteration 130
0.2727933526 = residual at iteration 140
0.2188807279 = residual at iteration 150
0.3123776317 = residual at iteration 160
0.0001083832 = residual at iteration 170
0.0000350944 = residual at iteration 180
0.0000001696 = residual at iteration 190
0.3269132376 = residual at iteration 200
0.0027501311 = residual at iteration 210
0.0001576517 = residual at iteration 220
0.0000645114 = residual at iteration 230
0.0000423511 = residual at iteration 240
0.0000026870 = residual at iteration 250
0.0000025331 = residual at iteration 260
0.0000002770 = residual at iteration 270
0.2970876098 = residual at iteration 280
0.1755346209 = residual at iteration 290
0.1777017415 = residual at iteration 300
0.0025695825 = residual at iteration 310
0.0001043161 = residual at iteration 320
0.0000833615 = residual at iteration 330
0.0000026601 = residual at iteration 340
0.0000004586 = residual at iteration 350
0.0000001981 = residual at iteration 360
0.0000002685 = residual at iteration 370
0.0000002209 = residual at iteration 380
0.0000002605 = residual at iteration 390
0.0000001904 = residual at iteration 400
0.0369556434 = residual at iteration 410
```

Appendix F-1. (continued)

```
0.0063167368 = residual at iteration 420
0.0054421611 = residual at iteration 430
0.2538641393 = residual at iteration 440
0.0155642815 = residual at iteration 450
0.0203195699 = residual at iteration 460
0.0133810043 = residual at iteration 470
0.0000113461 = residual at iteration 480
0.0000001224 = residual at iteration 490
0.0000001928 = residual at iteration 500
0.0000001562 = residual at iteration 510
0.0000001924 = residual at iteration 520
0.0000002843 = residual at iteration 530
0.0000001759 = residual at iteration 540
0.2618276179 = residual at iteration 550
0.0046501216 = residual at iteration 560
0.0001850504 = residual at iteration 570
0.0000062035 = residual at iteration 580
0.0000002641 = residual at iteration 590
0.0000001907 = residual at iteration 600
0.0000002437 = residual at iteration 610
0.2949216366 = residual at iteration 620
0.2442505211 = residual at iteration 630
0.0038934557 = residual at iteration 640
0.0041296161 = residual at iteration 650
0.0036671984 = residual at iteration 660
0.0084300740 = residual at iteration 670
0.0024910320 = residual at iteration 680
0.0000524372 = residual at iteration 690
0.0000014152 = residual at iteration 700
0.0000004068 = residual at iteration 710
0.2084062397 = residual at iteration 720
0.2181272358 = residual at iteration 730
0.2261333168 = residual at iteration 740
0.0015916551 = residual at iteration 750
0.0028124147 = residual at iteration 760
0.0013827700 = residual at iteration 770
0.0000049218 = residual at iteration 780
0.0000002471 = residual at iteration 790
0.2338737100 = residual at iteration 800
0.0118770758 = residual at iteration 810
0.0036627108 = residual at iteration 820
0.0091514494 = residual at iteration 830
0.0000002346 = residual at iteration 840
0.3207143843 = residual at iteration 850
0.3051535487 = residual at iteration 860
0.0209323112 = residual at iteration 870
0.0051953117 = residual at iteration 880
0.0000108219 = residual at iteration 890
0.0000004408 = residual at iteration 900
0.0000097666 = residual at iteration 910
0.0000003340 = residual at iteration 920
0.0000001912 = residual at iteration 930
0.0000001905 = residual at iteration 940
0.2624126077 = residual at iteration 950
```

```
 0.0029076552 = residual at iteration 960
 0.0217590909 = residual at iteration 970
 0.0027586063 = residual at iteration 980
 0.0002099791 = residual at iteration 990
 0.0122735454 = residual at iteration 999
 0.7274214625 = eigenvalue
*** BEWARE *** RESIDUAL BIGGER THAN TOLERANCE, WHICH IS 0.0000001000

Length of gradient:     2.754
Length of segments:  0.30  0.30  0.30  0.30  0.30  0.28  0.17  0.11  0.11  0.11
Length of segments:  0.11  0.12  0.12  0.12
Length of gradient:     2.976

Length of gradient:     3.450
Length of segments:  0.25  0.25  0.25  0.24  0.23  0.23  0.22  0.21  0.20  0.15
Length of segments:  0.13  0.13  0.14  0.15  0.16  0.16  0.17  0.18
Length of gradient:     3.585


                ---------- Axis 2 ----------

 0.0624841712 = residual at iteration   0
 0.0486882329 = residual at iteration   1
 0.0015439373 = residual at iteration   2
 0.0000643502 = residual at iteration   3
 0.0000020395 = residual at iteration   4
 0.0000000942 = residual at iteration   5
 0.2702049613 = eigenvalue

Length of gradient:     1.309
Length of segments:  0.22  0.22  0.22  0.20  0.12  0.07  0.07  0.06  0.06  0.06
Length of gradient:     1.509

Length of gradient:     2.404
Length of segments:  0.20  0.21  0.22  0.22  0.23  0.23  0.23  0.21  0.15  0.13
Length of segments:  0.13  0.12  0.12
Length of gradient:     2.503


                ---------- Axis 3 ----------

 0.0560475364 = residual at iteration   0
 0.0002271052 = residual at iteration   1
 0.0000001783 = residual at iteration   2
 0.0000749997 = residual at iteration   3
 0.0000000764 = residual at iteration   4
 0.1807978749 = eigenvalue


Length of gradient:     1.970
Length of segments:  0.15  0.16  0.18  0.19  0.21  0.22  0.22  0.22  0.22  0.20
Length of gradient:     1.996
Length of gradient:     1.986
Length of segments:  0.17  0.19  0.20  0.21  0.21  0.21  0.21  0.20  0.20  0.19
Length of gradient:     1.975


Wabamun Lake Ash Lagoon Results Nov 2002

SPECIES SCORES

  N    NAME       AX1  AX2  AX3       |      RANKED 1           |      RANKED 2
                                      |     EIG=0.727           |     EIG=0.270         |
   1 S1            36  117  -25       |    46 S49          407  |    29 S29          330 |
   2 S2           339   43   92       |    39 S41          403  |    84 S88          324 |
   3 S3           -19  104   -5       |    22 S22          400  |    20 S20          320 |
   4 S4            14  104  -41       |   100 S104         400  |    57 S60          299 |
   5 S5           380   86   71       |    36 S38          399  |    13 S13          295 |
   6 S6           385   98   62       |    21 S21          399  |    35 S37          285 |
   7 S7            40  -17    4       |    23 S23          397  |    19 S19          284 |
   8 S8            52   57  -68       |    64 S67          395  |    41 S44          264 |
   9 S9            34 -107  -27       |    33 S35          395  |    61 S64          217 |
  10 S10            4   27  -46       |    56 S59          395  |   116 S123         213 |
  11 S11          -48   98  548       |    24 S24          394  |    91 S95          184 |
  12 S12           17 -108  -25       |    48 S51          390  |   114 S121         178 |
  13 S13           40  295   19       |    60 S63          390  |    88 S92          160 |
  14 S14           15   17  -27       |    63 S66          389  |   115 S122         158 |
  15 S15          -10   89  -19       |     6 S6           385  |   100 S104         151 |
  16 S16          310   48  240       |    18 S18          383  |    21 S21          148 |
  17 S17          280   30   41       |     5 S5           380  |   117 S124         131 |
  18 S18          383  118   44       |    25 S25          379  |    62 S65          123 |
  19 S19          340  284   23       |   102 S107         379  |   111 S116         119 |
  20 S20           49  320  133       |    66 S69          377  |    18 S18          118 |
  21 S21          399  148   22       |   117 S124         377  |     1 S1           117 |
  22 S22          400  106   55       |    67 S70          368  |    66 S69          116 |
  23 S23          397   88   67       |    50 S53          368  |    43 S46          116 |
  24 S24          394   76   88       |    58 S61          368  |    32 S34          115 |
  25 S25          379   16   41       |   103 S108         367  |    45 S48          115 |
  26 S26          -18   46  238       |   113 S120         362  |    49 S52          108 |
  27 S27            0   40  159       |    19 S19          340  |    22 S22          106 |
  28 S28          327  101  123       |     2 S2           339  |     4 S4           104 |
  29 S29           67  330   84       |    97 S101         338  |     3 S3           104 |
  30 S30           19   -6   50       |   116 S123         328  |    28 S28          101 |
  31 S33            8 -256   93       |    28 S28          327  |    68 S71           98 |
  32 S34           18  115  -33       |    16 S16          310  |    11 S11           98 |
  33 S35          395   71   95       |   118 S125         298  |     6 S6            98 |
  34 S36           27    8   27       |    41 S44          291  |    92 S96           97 |
  35 S37           19  285  221       |    17 S17          280  |    38 S40           95 |
  36 S38          399   83   76       |   109 S114         229  |    63 S66           94 |
  37 S39           32   -2   81       |   101 S106         228  |    87 S91           90 |
  38 S40          -38   95  -80       |    99 S103         192  |    15 S15           89 |
  39 S41          403   85   78       |    57 S60          172  |    23 S23           88 |
  40 S43           18  -47   88       |   112 S118         142  |   113 S120          88 |
  41 S44          291  264  146       |   120 S127         138  |    67 S70           86 |
  42 S45           24  -51  -20       |    98 S102          90  |    58 S61           86 |
  43 S46           -1  116  204       |    84 S88           81  |     5 S5            86 |
```

Appendix F-1. (continued)

```
 44 S47          7   37  148       |      29 S29          67 |    48 S51         86 |
 45 S48        -71  115  669       |      93 S97          60 |    50 S53         86 |
 46 S49        407   61  101       |      81 S85          56 |   110 S115        86 |
 47 S50         17 -119   30       |      91 S95          53 |    39 S41         85 |
 48 S51        390   86   55       |       8 S8           52 |   102 S107        85 |
 49 S52        -77  108  759       |     105 S110         52 |   105 S110        85 |
 50 S53        368   86   69       |      90 S94          51 |    78 S82         84 |
 51 S54        -53  -86  108       |      20 S20          49 |   107 S112        84 |
 52 S55          8  -22   70       |      82 S86          49 |    36 S38         83 |
 53 S56          8  -82    7       |      59 S62          44 |    89 S93         80 |
 54 S57         16 -107  -44       |       7 S7           40 |    24 S24         76 |
 55 S58         29   -1   46       |      13 S13          40 |   104 S109        75 |
 56 S59        395   71   95       |     115 S122         38 |    97 S101        74 |
 57 S60        172  299   14       |     107 S112         37 |    64 S67         71 |
 58 S61        368   86   69       |       1 S1           36 |    33 S35         71 |
 59 S62         44  -27   -6       |     106 S111         36 |    83 S87         71 |
 60 S63        390   62   63       |      94 S98          35 |    56 S59         71 |
 61 S64         10  217  132       |       9 S9           34 |    74 S78         68 |
 62 S65         -1  123  157       |      86 S90          34 |    85 S89         68 |
 63 S66        389   94   68       |      79 S83          33 |    76 S80         67 |
 64 S67        395   71   95       |      37 S39          32 |    69 S72         63 |
 65 S68          7   30   -7       |      75 S79          30 |    82 S86         62 |
 66 S69        377  116    8       |      55 S58          29 |    60 S63         62 |
 67 S70        368   86   69       |      34 S36          27 |    46 S49         61 |
 68 S71        -13   98  -35       |      42 S45          24 |     8 S8          57 |
 69 S72        -18   63  221       |      95 S99          24 |    72 S76         57 |
 70 S74         12  -66  198       |      71 S75          20 |    16 S16         48 |
 71 S75         20 -204  140       |      35 S37          19 |   106 S111        46 |
 72 S76          1   57  228       |     104 S109         19 |    26 S26         46 |
 73 S77        -13   39  360       |     108 S113         19 |     2 S2          43 |
 74 S78          8   68   10       |      30 S30          19 |    86 S90         42 |
 75 S79         30    5  -52       |      32 S34          18 |    27 S27         40 |
 76 S80        -17   67  245       |      77 S81          18 |    73 S77         39 |
 77 S81         18 -112  151       |      40 S43          18 |    44 S47         37 |
 78 S82         -3   84  -38       |      47 S50          17 |    90 S94         35 |
 79 S83         33    7  -41       |      12 S12          17 |    17 S17         30
 80 S84          5    4  186       |      54 S57          16 |    65 S68         30 |
 81 S85         56 -494  114       |      14 S14          15 |    10 S10         27 |
 82 S86         49   62   40       |       4 S4           14 |    93 S97         26 |
 83 S87         11   71    5       |      96 S100         14 |    99 S103        21 |
 84 S88         81  324   88       |     110 S115         13 |    14 S14         17 |
 85 S89          0   68  -50       |      70 S74          12 |    25 S25         16 |
 86 S90         34   42  -83       |     111 S116         11 |    34 S36          8 |
 87 S91        -16   90  256       |      83 S87          11 |   103 S108         8 |
 88 S92        -27  160  168       |     119 S126         10 |   112 S118         8 |
 89 S93          8   80  -80       |      61 S64          10 |    79 S83          7 |
 90 S94         51   35   70       |      52 S55           8 |    75 S79          5 |
 91 S95         53  184  130       |      74 S78           8 |    80 S84          4 |
 92 S96        -27   97  289       |      89 S93           8 |    55 S58         -1 |
 93 S97         60   26  178       |      53 S56           8 |    37 S39         -2 |
 94 S98         35  -79   19       |      31 S33           8 |    30 S30         -6 |
 95 S99         24 -132   15       |      65 S68           7 |   108 S113        -9 |
 96 S100        14  -13  280       |      44 S47           7 |   120 S127       -12 |
 97 S101       338   74  118       |      80 S84           5 |    96 S100       -13 |
  98 S102          90 -154    -3      |     10 S10           4 |     7 S7           -17 |
  99 S103         192   21    10      |     72 S76           1 |   118 S125         -18 |
 100 S104         400  151    24      |     27 S27           0 |    52 S55          -22 |
 101 S106         228  -28    51      |     85 S89           0 |    59 S62          -27 |
 102 S107         379   85    77      |     62 S65          -1 |   101 S106         -28 |
 103 S108         367    8    67      |     43 S46          -1 |    40 S43          -47 |
 104 S109          19   75   -23      |     78 S82          -3 |    42 S45          -51 |
 105 S110          52   85   -19      |     15 S15         -10 |    70 S74          -66 |
 106 S111          36   46   -10      |     68 S71         -13 |    94 S98          -79 |
 107 S112          37   84    24      |     73 S77         -13 |    53 S56          -82 |
 108 S113          19   -9   -24      |     87 S91         -16 |    51 S54          -86 |
 109 S114         229 -126    97      |     76 S80         -17 |    54 S57         -107 |
 110 S115          13   86   -25      |    114 S121        -17 |     9 S9          -107 |
 111 S116          11  119    -5      |     69 S72         -18 |    12 S12         -108 |
 112 S118         142    8    -6      |     26 S26         -18 |    77 S81         -112 |
 113 S120         362   88    66      |      3 S3          -19 |   119 S126        -113 |
 114 S121         -17  178   146      |     88 S92         -27 |    47 S50         -119 |
 115 S122          38  158   115      |     92 S96         -27 |   109 S114        -126 |
 116 S123         328  213    53      |     38 S40         -38 |    95 S99         -132 |
 117 S124         377  131    50      |     11 S11         -48 |    98 S102        -154 |
 118 S125         298  -18    19      |     51 S54         -53 |    71 S75         -204 |
 119 S126          10 -113    27      |     45 S48         -71 |    31 S33         -256 |
 120 S127         138  -12   -11      |     49 S52         -77 |    81 S85         -494 |


Wabamun Lake Ash Lagoon Results Nov 2002

SAMPLE SCORES - WHICH ARE WEIGHTED MEAN SPECIES SCORES

  N    NAME       AX1  AX2  AX3       |      RANKED 1          |      RANKED 2
                                      |    EIG=0.727           |    EIG=0.270          |
   1 AL-1          78  201   101      |    7 ADC-2       358 |    3 AL-3         250 |
   2 AL-2          72  237   100      |    6 ADC-1       355 |    4 AL-4         248 |
   3 AL-3          69  250    99      |   10 ADC-5       337 |    5 AL-5         240 |
   4 AL-4          75  248   101      |    8 ADC-3       334 |    2 AL-2         237 |
   5 AL-5          68  240   102      |    9 ADC-4       297 |    1 AL-1         201 |
   6 ADC-1        355  100    74      |    1 AL-1         78 |   11 AW1-1        100 |
   7 ADC-2        358   83    75      |    4 AL-4         75 |    6 ADC-1        100 |
   8 ADC-3        334   61    82      |    2 AL-2         72 |   68 BAW6-3        98 |
   9 ADC-4        297   75    76      |    3 AL-3         69 |   67 BAW6-2        88 |
  10 ADC-5        337   79    77      |    5 AL-5         68 |   70 BAW6-5        88 |
  11 AW1-1         48  100    96      |   32 AW5-2        67 |   62 BAW5-2        88 |
  12 AW1-2         39   83   101      |   31 AW5-1        60 |   66 BAW6-1        84 |
  13 AW1-3         42   54    70      |   35 AW5-5        55 |   69 BAW6-4        83 |
  14 AW1-4         52   33    72      |   25 AW3-5        54 |   41 BAW1-1        83 |
  15 AW1-5         53   33    71      |   15 AW1-5        53 |   12 AW1-2         83 |
  16 AW2-1         35   20    95      |   14 AW1-4        52 |    7 ADC-2         83 |
  17 AW2-2         40   23    75      |   33 AW5-3        49 |   44 BAW1-4        82 |
  18 AW2-3         37   41    72      |   53 BAW3-3       49 |   45 BAW1-5        81 |
  19 AW2-4         41   26    85      |   11 AW1-1        48 |   10 ADC-5         79 |
  20 AW2-5         39   19    91      |   36 AW6-1        42 |   42 BAW1-2        79 |
  21 AW3-1         35   36   129      |   13 AW1-3        42 |   49 BAW2-4        78 |
  22 AW3-2         27   50   118      |   64 BAW5-4       41 |   55 BAW3-5        77 |
  23 AW3-3         20   47   160      |   19 AW2-4        41 |   56 BAW4-1        77 |
```

Appendix F-1.   (concluded)

```
 24 AW3-4        16   44  161          |    38 AW6-3      41 |    61 BAW5-1     77 |
 25 AW3-5        54   49   62          |    17 AW2-2      40 |    65 BAW5-5     76 |
 26 AW4-1        38   26   62          |    20 AW2-5      39 |    48 BAW2-3     76 |
 27 AW4-2        35   33   69          |    12 AW1-2      39 |    50 BAW2-5     76 |
 28 AW4-3        29   29   62          |    51 BAW3-1     39 |    57 BAW4-2     76 |
 29 AW4-4        37   41   54          |    52 BAW3-2     38 |    60 BAW4-5     76 |
 30 AW4-5        27   39   70          |    26 AW4-1      38 |     9 ADC-4      75 |
 31 AW5-1        60   14   94          |    18 AW2-3      37 |    40 AW6-5      75 |
 32 AW5-2        67    0  105          |    29 AW4-4      37 |    43 BAW1-3     74 |
 33 AW5-3        49    6  105          |    34 AW5-4      35 |    59 BAW4-4     74 |
 34 AW5-4        35    5   99          |    21 AW3-1      35 |    58 BAW4-3     73 |
 35 AW5-5        55   25   89          |    16 AW2-1      35 |    46 BAW2-1     67 |
 36 AW6-1        42   50  137          |    27 AW4-2      35 |    63 BAW5-3     66 |
 37 AW6-2        29   55  138          |    40 AW6-5      34 |    54 BAW3-4     65 |
 38 AW6-3        41   52  138          |    61 BAW5-1     34 |    64 BAW5-4     64 |
 39 AW6-4        27   63  166          |    69 BAW6-4     31 |    47 BAW2-2     63 |
 40 AW6-5        34   75  142          |    37 AW6-2      29 |    39 AW6-4      63 |
 41 BAW1-1        7   83   14          |    28 AW4-3      29 |     8 ADC-3      61 |
 42 BAW1-2        4   79   98          |    63 BAW5-3     29 |    51 BAW3-1     60 |
 43 BAW1-3       11   74  116          |    62 BAW5-2     28 |    37 AW6-2      55 |
 44 BAW1-4        8   82  145          |    68 BAW6-3     28 |    52 BAW3-2     54 |
 45 BAW1-5        6   81  112          |    67 BAW6-2     27 |    13 AW1-3      54 |
 46 BAW2-1       17   67   79          |    39 AW6-4      27 |    38 AW6-3      52 |
 47 BAW2-2       26   63  146          |    22 AW3-2      27 |    22 AW3-2      50 |
 48 BAW2-3       13   76  173          |    30 AW4-5      27 |    36 AW6-1      50 |
 49 BAW2-4        9   78  174          |    66 BAW6-1     26 |    25 AW3-5      49 |
 50 BAW2-5        0   76  197          |    47 BAW2-2     26 |    23 AW3-3      47 |
 51 BAW3-1       39   60   33          |    65 BAW5-5     24 |    24 AW3-4      44 |
 52 BAW3-2       38   54   66          |    54 BAW3-4     22 |    18 AW2-3      41 |
 53 BAW3-3       49   38   82          |    70 BAW6-5     21 |    29 AW4-4      41 |
 54 BAW3-4       22   65   93          |    58 BAW4-3     21 |    30 AW4-5      39 |
 55 BAW3-5       16   77   94          |    23 AW3-3      20 |    53 BAW3-3     38 |
 56 BAW4-1        6   77    0          |    46 BAW2-1     17 |    21 AW3-1      36 |
 57 BAW4-2       17   76   77          |    57 BAW4-2     17 |    27 AW4-2      33 |
 58 BAW4-3       21   73  128          |    55 BAW3-5     16 |    15 AW1-5      33 |
 59 BAW4-4        8   74   40          |    24 AW3-4      16 |    14 AW1-4      33 |
 60 BAW4-5        6   76   20          |    48 BAW2-3     13 |    28 AW4-3      29 |
 61 BAW5-1       34   77   65          |    43 BAW1-3     11 |    26 AW4-1      26 |
 62 BAW5-2       28   88   86          |    49 BAW2-4      9 |    19 AW2-4      26 |
 63 BAW5-3       29   66   72          |    44 BAW1-4      8 |    35 AW5-5      25 |
 64 BAW5-4       41   64   65          |    59 BAW4-4      8 |    17 AW2-2      23 |
 65 BAW5-5       24   76   64          |    41 BAW1-1      7 |    16 AW2-1      20 |
 66 BAW6-1       26   84   99          |    60 BAW4-5      6 |    20 AW2-5      19 |
 67 BAW6-2       27   88  155          |    45 BAW1-5      6 |    31 AW5-1      14 |
 68 BAW6-3       28   98  137          |    56 BAW4-1      6 |    33 AW5-3       6 |
 69 BAW6-4       31   83  123          |    42 BAW1-2      4 |    34 AW5-4       5 |
 70 BAW6-5       21   88   70          |    50 BAW2-5      0 |    32 AW5-2       0 |

***************************** Calculations finished *****************************
```

Appendix F-2. Detrended correspondence analysis results for the Wabamun Lake Water Treatment Plant area, November 2002.

```
****************** Detrended Correspondence Analysis (DCA) ******************
PC-ORD, Version 4.20
17 Sep 2003, 17:34

Wabamun Lake Water Treatment Plant Results Nov 2002
Number of non-zero data items:     2228

No downweighting
Axes are rescaled
Number of segments: 30
Threshold:  0.00


Total variance ("inertia") in the species data:   1.5551


                     ---------- Axis 1 ----------

 0.1379986554 = residual at iteration   0
 0.0292721093 = residual at iteration   1
 0.0023233218 = residual at iteration   2
 0.0002274428 = residual at iteration   3
 0.0000186957 = residual at iteration   4
 0.0000018718 = residual at iteration   5
 0.0000001536 = residual at iteration   6
 0.0000000688 = residual at iteration   7
 0.4275213778 = eigenvalue

Length of gradient:     2.130
Length of segments:  0.30  0.30  0.30  0.29  0.25  0.18  0.14  0.11  0.09  0.08
Length of segments:  0.08
Length of gradient:     2.994

Length of gradient:     3.150
Length of segments:  0.17  0.18  0.18  0.19  0.20  0.20  0.21  0.22  0.23  0.23
Length of segments:  0.22  0.19  0.19  0.19  0.18  0.18
Length of gradient:     3.119


                     ---------- Axis 2 ----------

 0.0700669661 = residual at iteration   0
 0.0003037827 = residual at iteration   1
 0.0000009744 = residual at iteration   2
 0.0000000314 = residual at iteration   3
 0.1680798680 = eigenvalue

Length of gradient:     1.970
Length of segments:  0.19  0.19  0.19  0.19  0.20  0.21  0.21  0.21  0.20  0.19
Length of gradient:     1.965
Length of gradient:     1.958
Length of segments:  0.19  0.19  0.19  0.19  0.20  0.21  0.21  0.20  0.20  0.19
Length of gradient:     1.953


                    ---------- Axis 3 ----------

 0.0167709887 = residual at iteration   0
 0.0020668048 = residual at iteration   1
 0.0002351443 = residual at iteration   2
 0.0000301930 = residual at iteration   3
 0.0000039457 = residual at iteration   4
 0.0000005282 = residual at iteration   5
 0.0000000758 = residual at iteration   6
 0.0484297425 = eigenvalue

Length of gradient:     1.206
Length of segments:  0.13  0.13  0.13  0.13  0.13  0.13  0.13  0.11  0.09  0.08
Length of gradient:     1.263

Length of gradient:     1.268
Length of segments:  0.12  0.12  0.12  0.13  0.13  0.13  0.13  0.14  0.13  0.12
Length of gradient:     1.265


Wabamun Lake Water Treatment Plant Results Nov 2002

SPECIES SCORES

  N    NAME      AX1  AX2  AX3       |      RANKED 1          |      RANKED 2
                                     |     EIG=0.428          |     EIG=0.168        |
  1 S1            23  277  259       |    22 S32          424 |    44 S60          622 |
  2 S2           163   53  144       |    62 S83          419 |    97 S124         532 |
  3 S3            49  372  216       |     5 S7           409 |    21 S31          402 |
  4 S4           243  344  214       |    32 S44          403 |     3 S3           372 |
  5 S7           409   69  267       |    17 S26          388 |    77 S102         360 |
  6 S8           286  124  200       |    73 S98          388 |    38 S50          359 |
  7 S9           185    2  -28       |    74 S99          378 |    41 S56          358 |
  8 S10          330  212   11       |    14 S17          377 |    51 S71          355 |
  9 S11          158  -70  111       |    95 S122         376 |     4 S4           344 |
 10 S13           37  203  150       |    88 S115         369 |    11 S14          342 |
 11 S14          176  342  -83       |    58 S79          363 |    25 S36          333 |
 12 S15          319  -58   59       |    64 S85          352 |    49 S68          331 |
 13 S16          -11  146  117       |    90 S117         347 |    30 S42          327 |
 14 S17          377   85  -62       |    53 S73          337 |    23 S33          314 |
 15 S19           65  277  273       |    82 S108         333 |    85 S112         305 |
 16 S20           91  -77  222       |     8 S10          330 |    42 S57          301 |
 17 S26          388   60  -47       |    98 S125         320 |    45 S62          294 |
 18 S27          114  -56  147       |    12 S15          319 |    24 S34          285 |
 19 S28          124  -84  156       |    84 S111         316 |   101 S128         284 |
 20 S30          285   52   71       |    80 S106         315 |     1 S1           277 |
 21 S31           47  402  260       |     6 S8           286 |    15 S19          277 |
 22 S32          424   90  -69       |    20 S30          285 |    81 S107         272 |
 23 S33           54  314  375       |    45 S62          282 |    86 S113         271 |
```

Appendix F-2. (continued)

```
 24 S34            10  285 -339         |     27 S39         277 |    33 S45          268 |
 25 S36            67  333  142         |     87 S114        253 |    43 S58          258 |
 26 S38            65    6  -64         |     56 S77         253 |    53 S73          256 |
 27 S39           277   40  124         |     46 S64         252 |    92 S119         245 |
 28 S40           106   21  -21         |     39 S51         246 |    78 S103         242 |
 29 S41           -13  167  -76         |     41 S56         246 |    39 S51          237 |
 30 S42            23  327   88         |      4 S4          243 |    58 S79          233 |
 31 S43           119  -46  134         |     72 S97         217 |    87 S114         216 |
 32 S44           403   65  -20         |     63 S84         205 |    64 S85          213 |
 33 S45            64  268  -17         |     48 S66         193 |     8 S10          212 |
 34 S46            50   -5  154         |      7 S9          185 |    96 S123         211 |
 35 S47           126  -67  130         |     71 S96         184 |    98 S125         208 |
 36 S48           170   54 -262         |     50 S69         181 |    83 S109         204 |
 37 S49            92   67  -63         |     83 S109        176 |    10 S13          203 |
 38 S50            42  359  405         |     11 S14         176 |    82 S108         202 |
 39 S51           246  237 -476         |     36 S48         170 |    48 S66          197 |
 40 S55            35   61  216         |      2 S2          163 |    80 S106         179 |
 41 S56           246  358  871         |     54 S74         162 |    60 S81          177 |
 42 S57             0  301 -118         |      9 S11         158 |    29 S41          167 |
 43 S58            17  258   14         |     65 S86         153 |    68 S92          164 |
 44 S60           133  622  380         |     76 S101        138 |    79 S105         163 |
 45 S62           282  294 -287         |     44 S60         133 |    93 S120         161 |
 46 S64           252   39  193         |     75 S100        131 |    90 S117         159 |
 47 S65            95   76  189         |     35 S47         126 |   100 S127         149 |
 48 S66           193  197 -339         |     19 S28         124 |    13 S16          146 |
 49 S68            26  331  467         |     31 S43         119 |    57 S78          143 |
 50 S69           181  -36  169         |     89 S116        118 |     6 S8           124 |
 51 S71            33  355  200         |     52 S72         118 |    61 S82          110 |
 52 S72           118  -69  119         |     18 S27         114 |    99 S126         102 |
 53 S73           337  256  367         |     93 S120        113 |    66 S87          100 |
 54 S74           162  -66  137         |     59 S80         110 |    22 S32           90 |
 55 S76            97  -63    6         |     70 S95         107 |    70 S95           89 |
 56 S77           253  -49  147         |     28 S40         106 |    95 S122          86 |
 57 S78            77  143   87         |     55 S76          97 |    14 S17           85 |
 58 S79           363  233   73         |     47 S65          95 |    73 S98           82 |
 59 S80           110  -54   86         |     94 S121         93 |    62 S83           82 |
 60 S81           -14  177   55         |     37 S49          92 |    84 S111          77 |
 61 S82           -10  110   24         |     16 S20          91 |    47 S65           76 |
 62 S83           419   82  208         |     99 S126         81 |    74 S99           72 |
 63 S84           205  -42   78         |     67 S91          77 |     5 S7            69 |
 64 S85           352  213  172         |     57 S78          77 |    37 S49           67 |
 65 S86           153  -38  146         |     69 S94          76 |    32 S44           65 |
 66 S87            68  100 -117         |     97 S124         74 |    91 S118          65 |
 67 S91            77   -7  115         |     96 S123         72 |    40 S55           61 |
 68 S92            44  164  218         |     85 S112         71 |    88 S115          61 |
 69 S94            76   52 -101         |     66 S87          68 |    17 S26           60 |
 70 S95           107   89   98         |     25 S36          67 |    36 S48           54 |
 71 S96           184   -9  114         |     26 S38          65 |     2 S2            53 |
 72 S97           217   -8   79         |     15 S19          65 |    20 S30           52 |
 73 S98           388   82   22         |     81 S107         64 |    69 S94           52 |
 74 S99           378   72  179         |     33 S45          64 |    94 S121          40 |
 75 S100          131  -35  136         |     78 S103         62 |    27 S39           40 |
 76 S101          138  -91  123         |     23 S33          54 |    46 S64           39 |
 77 S102           40  360  -82         |     34 S46          50 |    89 S116          25 |
  78 S103         62  242   29       |     3 S3          49 |    28 S40         21 |
  79 S105          0  163 -342       |    21 S31         47 |    26 S38          6 |
  80 S106        315  179   78       |    68 S92         44 |     7 S9           2 |
  81 S107         64  272  252       |    38 S50         42 |    34 S46         -5 |
  82 S108        333  202   50       |    77 S102        40 |    67 S91         -7 |
  83 S109        176  204  164       |    10 S13         37 |    72 S97         -8 |
  84 S111        316   77   29       |    40 S55         35 |    71 S96         -9 |
  85 S112         71  305  262       |   100 S127        34 |    75 S100       -35 |
  86 S113         33  271   45       |    51 S71         33 |    50 S69        -36 |
  87 S114        253  216  -74       |    86 S113        33 |    65 S86        -38 |
  88 S115        369   61   46       |    91 S118        32 |    63 S84        -42 |
  89 S116        118   25  281       |    49 S68         26 |    31 S43        -46 |
  90 S117        347  159  136       |    92 S119        25 |    56 S77        -49 |
  91 S118         32   65   46       |     1 S1          23 |    59 S80        -54 |
  92 S119         25  245 -463       |    30 S42         23 |    18 S27        -56 |
  93 S120        113  161  142       |   101 S128        17 |    12 S15        -58 |
  94 S121         93   40  158       |    43 S58         17 |    55 S76        -63 |
  95 S122        376   86  184       |    24 S34         10 |    54 S74        -66 |
  96 S123         72  211   21       |    79 S105         0 |    35 S47        -67 |
  97 S124         74  532  205       |    42 S57          0 |    52 S72        -69 |
  98 S125        320  208  154       |    61 S82        -10 |     9 S11        -70 |
  99 S126         81  102 -209       |    13 S16        -11 |    16 S20        -77 |
 100 S127         34  149 -178       |    29 S41        -13 |    19 S28        -84 |
 101 S128         17  284  235       |    60 S81        -14 |    76 S101       -91 |


Wabamun Lake Water Treatment Plant Results Nov 2002

SAMPLE SCORES - WHICH ARE WEIGHTED MEAN SPECIES SCORES

   N     NAME      AX1  AX2  AX3       |      RANKED 1         |      RANKED 2
                                       |    EIG=0.428          |    EIG=0.168        |
   1 WDC-1         269  159   15       |     5 WDC-5      311 |    16 WW3-1      195 |
   2 WDC-2         266  127   22       |     4 WDC-4      301 |     7 WW1-2      179 |
   3 WDC-3         234  135   31       |     1 WDC-1      269 |    15 WW2-5      173 |
   4 WDC-4         301  108   41       |     2 WDC-2      266 |    19 WW3-4      163 |
   5 WDC-5         311  112    1       |     3 WDC-3      234 |     8 WW1-3      162 |
   6 WW1-1          91  148   34       |    37 BWW1-2     152 |    21 WW4-1      161 |
   7 WW1-2         121  179   23       |    55 BWW4-5     149 |     1 WDC-1      159 |
   8 WW1-3         105  162   56       |    38 BWW1-3     143 |    11 WW2-1      152 |
   9 WW1-4          95  107   62       |    43 BWW2-3     142 |    25 WW4-5      151 |
  10 WW1-5          50  128   46       |    51 BWW4-1     139 |    12 WW2-2      150 |
  11 WW2-1          79  152   72       |    36 BWW1-1     137 |    13 WW2-3      149 |
  12 WW2-2          88  150   65       |    54 BWW4-4     137 |    18 WW3-3      148 |
  13 WW2-3          72  149   74       |    41 BWW2-1     134 |     6 WW1-1      148 |
  14 WW2-4          88  131   67       |    53 BWW4-3     134 |    24 WW4-4      147 |
  15 WW2-5          95  173   73       |    52 BWW4-2     133 |    22 WW4-2      144 |
  16 WW3-1         125  195  126       |    44 BWW2-4     132 |    17 WW3-2      143 |
  17 WW3-2         130  143   84       |    45 BWW2-5     131 |    23 WW4-3      143 |
  18 WW3-3          99  148  115       |    49 BWW3-4     131 |    26 WW5-1      139 |
  19 WW3-4         126  163   94       |    17 WW3-2      130 |    29 WW5-4      138 |
  20 WW3-5          93  102   94       |    57 BWW5-2     129 |     3 WDC-3      135 |
  21 WW4-1         116  161    0       |    19 WW3-4      126 |    30 WW5-5      134 |
  22 WW4-2          96  144    4       |    16 WW3-1      125 |    35 WW6-5      132 |
```

Appendix F-2. (concluded)

```
  23 WW4-3      112  143    0        |      50 BWW3-5     125 |    27 WW5-2       131 |
  24 WW4-4      119  147    6        |      46 BWW3-1     123 |    14 WW2-4       131 |
  25 WW4-5       95  151    9        |      47 BWW3-2     123 |    34 WW6-4       130 |
  26 WW5-1       65  139   13        |       7 WW1-2      121 |    10 WW1-5       128 |
  27 WW5-2       34  131   24        |      24 WW4-4      119 |     2 WDC-2       127 |
  28 WW5-3       35  118   22        |      60 BWW5-5     117 |    31 WW6-1       119 |
  29 WW5-4       76  138   23        |      21 WW4-1      116 |    28 WW5-3       118 |
  30 WW5-5       64  134   23        |      42 BWW2-2     113 |    33 WW6-3       112 |
  31 WW6-1       33  119   25        |      58 BWW5-3     113 |     5 WDC-5       112 |
  32 WW6-2        0  110   26        |      23 WW4-3      112 |    32 WW6-2       110 |
  33 WW6-3        8  112   24        |      40 BWW1-5     110 |     4 WDC-4       108 |
  34 WW6-4       55  130   41        |      48 BWW3-3     109 |     9 WW1-4       107 |
  35 WW6-5       49  132   34        |      65 BWW6-5     106 |    20 WW3-5       102 |
  36 BWW1-1     137   40   65        |       8 WW1-3      105 |    39 BWW1-4       82 |
  37 BWW1-2     152   42   80        |      39 BWW1-4     104 |    40 BWW1-5       76 |
  38 BWW1-3     143   55   68        |      64 BWW6-4     104 |    61 BWW6-1       66 |
  39 BWW1-4     104   82   52        |      63 BWW6-3     103 |    62 BWW6-2       66 |
  40 BWW1-5     110   76   63        |      18 WW3-3       99 |    38 BWW1-3       55 |
  41 BWW2-1     134   38   78        |      56 BWW5-1      99 |    58 BWW5-3       52 |
  42 BWW2-2     113   45   63        |      22 WW4-2       96 |    50 BWW3-5       50 |
  43 BWW2-3     142   33   85        |       9 WW1-4       95 |    48 BWW3-3       49 |
  44 BWW2-4     132   33   93        |      25 WW4-5       95 |    59 BWW5-4       45 |
  45 BWW2-5     131   39   84        |      15 WW2-5       95 |    42 BWW2-2       45 |
  46 BWW3-1     123   30   96        |      20 WW3-5       93 |    56 BWW5-1       44 |
  47 BWW3-2     123   36   92        |      59 BWW5-4      92 |    37 BWW1-2       42 |
  48 BWW3-3     109   49   77        |       6 WW1-1       91 |    63 BWW6-3       41 |
  49 BWW3-4     131   41   83        |      14 WW2-4       88 |    49 BWW3-4       41 |
  50 BWW3-5     125   50   80        |      12 WW2-2       88 |    36 BWW1-1       40 |
  51 BWW4-1     139   26   98        |      61 BWW6-1      79 |    45 BWW2-5       39 |
  52 BWW4-2     133    0  112        |      11 WW2-1       79 |    41 BWW2-1       38 |
  53 BWW4-3     134   23   94        |      29 WW5-4       76 |    54 BWW4-4       38 |
  54 BWW4-4     137   38   96        |      62 BWW6-2      76 |    60 BWW5-5       36 |
  55 BWW4-5     149    3  110        |      13 WW2-3       72 |    47 BWW3-2       36 |
  56 BWW5-1      99   44   73        |      26 WW5-1       65 |    44 BWW2-4       33 |
  57 BWW5-2     129   25   91        |      30 WW5-5       64 |    43 BWW2-3       33 |
  58 BWW5-3     113   52   60        |      34 WW6-4       55 |    65 BWW6-5       31 |
  59 BWW5-4      92   45   75        |      10 WW1-5       50 |    46 BWW3-1       30 |
  60 BWW5-5     117   36   82        |      35 WW6-5       49 |    64 BWW6-4       27 |
  61 BWW6-1      79   66   54        |      28 WW5-3       35 |    51 BWW4-1       26 |
  62 BWW6-2      76   66   54        |      27 WW5-2       34 |    57 BWW5-2       25 |
  63 BWW6-3     103   41   85        |      31 WW6-1       33 |    53 BWW4-3       23 |
  64 BWW6-4     104   27   95        |      33 WW6-3        8 |    55 BWW4-5        3 |
  65 BWW6-5     106   31   87        |      32 WW6-2        0 |    52 BWW4-2        0 |

*************************** Calculations finished ***************************
```

APPENDIX G

BENTHIC INVERTEBRATE BIOMASS RESULTS, AND STATISTICAL ANALYSIS, NOVEMBER 2002

Stantec

Appendix G1. Wet weight (g) of total organisms for each sample (0.046 m^2) and per m^2, with mean and standard deviation (
for the Ash Lagoon area, November 2002.

Site	Weight of Organisms (g)											
	Sample 1		Sample 2		Sample 3		Sample 4		Sample 5		Mean	Mean
	Sample	Per m^2	Sample	Per m^2	Sample	Per m^2	Sample	Per m^2	Sample	Per m^2	Sample	Per m^2
AL	0.5147	11.0688	0.4838	10.4043	0.4885	10.5054	0.5666	12.1849	0.4725	10.1613	0.5052	10.8649
ADC	5.3410	114.8602	5.8157	125.0688	0.8098	17.4151	1.7271	37.1419	2.8527	61.3484	3.3093	71.1669
AW1	0.5706	12.2710	0.9486	20.4000	2.0144	43.3204	1.6071	34.5613	2.7245	58.5914	1.5730	33.8288
AW2	0.8287	17.8215	1.3220	28.4301	0.7365	15.8387	1.5208	32.7054	1.1894	25.5785	1.1195	24.0748
AW3	0.6625	14.2473	0.3755	8.0753	0.5137	11.0473	0.6891	14.8194	1.0496	22.5720	0.6581	14.1523
AW4	2.3928	51.4581	3.0321	65.2065	2.4220	52.0860	2.0227	43.4989	1.4802	31.8323	2.2700	48.8163
AW5	1.5757	33.8860	2.1916	47.1312	2.2484	48.3527	2.1403	46.0280	1.7253	37.1032	1.9763	42.5002
AW6	0.9112	19.5957	0.6396	13.7548	1.8447	39.6710	0.8237	17.7140	1.8183	39.1032	1.2075	25.9677
AW AREA											1.4674	31.5567
BAW1	0.1865	4.0108	0.1572	3.3806	0.1033	2.3290	0.1104	2.3742	0.1304	2.8043	0.1386	2.9798
BAW2	0.1831	3.9376	0.2805	6.0323	0.1165	2.5054	0.1049	2.2559	0.0913	1.9634	0.1553	3.3389
BAW3	0.4592	9.8753	0.3728	8.0172	0.8688	18.6839	0.5563	11.9634	0.5880	12.6452	0.5690	12.2370
BAW4	0.4509	9.6968	0.4192	9.0151	0.3105	6.6774	0.7199	15.4817	0.8092	17.4022	0.5419	11.6546
BAW5	1.2369	26.6000	0.8725	18.7634	1.3451	28.9269	1.6580	35.6559	1.7074	36.7183	1.3640	29.3329
BAW6	0.4880	10.4946	0.4624	9.9441	0.5915	12.7204	0.8472	18.2194	0.9726	20.9161	0.6723	14.4589
BAW AREA											0.5735	12.3337

Appendix G-2. ANOVA for benthic invertebrate biomass for the Ash Lagoon area, November 2002.

```
ONE-WAY ANOVA FOR TOTAL BIOMASS BY AREA

SOURCE      DF       SS          MS          F        P
-------    ----   ---------   ---------   ------   ------
BETWEEN      1     1108.57     1108.57     8.69    0.0146*
WITHIN      10     1275.31     127.531
TOTAL       11     2383.88

                       CHI-SQ      DF        P
BARTLETT'S TEST OF     ------    ------   ------
   EQUAL VARIANCES       0.36        1     0.5501

COCHRAN'S Q                          0.6375
LARGEST VAR / SMALLEST VAR           1.7582

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     163.507
EFFECTIVE CELL SIZE                              6.0

                              SAMPLE      GROUP
   AREA            MEAN        SIZE      STD DEV
---------      ----------    ------    ----------
    1            31.557         6         12.751
    2            12.334         6         9.6163
TOTAL            21.945        12         11.293

CASES INCLUDED 12    MISSING CASES 0
```

---

*   Significant at $p < 0.05$

**   Not Significant at $p > 0.05$

Appendix G3. Wet weight (g) of total organisms for each sample (0.046 m^2) and per m^2, with mean and standard deviation (
for the Wabamun Lake Water Treatment Plant area, November 2002.

Site	Weight of Organisms (g)											
	Sample 1		Sample 2		Sample 3		Sample 4		Sample 5		Mean	Mean
	Sample	Per m^2	Sample	Per m^2	Sample	Per m^2	Sample	Per m^2	Sample	Per m^2	Sample	Per m^2
WDC	2.0330	43.7204	1.3795	29.6667	1.9562	42.0688	1.8703	40.2215	2.1077	45.3269	1.8693	40.2009
WW1	0.7068	15.2000	0.5099	10.9656	0.9208	19.8022	0.4304	9.2559	1.2224	26.2882	0.7581	16.3024
WW2	0.6181	13.2925	0.6855	14.7419	0.9295	19.9892	0.4842	10.4129	0.9747	20.9613	0.7384	15.8796
WW3	0.2510	5.3978	0.3520	7.5699	0.4579	9.8473	0.2850	6.1290	0.9010	19.3763	0.4494	9.6641
WW4	1.0152	21.8323	0.6240	13.4194	0.8050	17.3118	0.2065	4.4409	0.7279	15.6538	0.6757	14.5316
WW5	0.6794	14.6108	0.6910	14.8602	0.8548	18.3828	0.9586	20.6151	0.6210	13.3548	0.7610	16.3647
WW6	0.0699	1.5032	0.1631	3.5075	0.0720	1.5484	0.3824	8.2237	0.4501	9.6796	0.2275	4.8925
WW AREA											0.6017	12.9391
BWW1	0.2302	4.9505	0.3176	6.8301	0.1882	4.0473	1.2078	25.9742	0.6376	13.7118	0.5163	11.1028
BWW2	0.3299	7.0946	0.3067	6.5957	0.3758	8.0817	0.1691	3.6366	0.0651	1.3989	0.2493	5.3615
BWW3	0.2276	4.8946	0.3834	8.2452	0.2491	5.3570	0.3248	6.9849	0.3152	6.7785	0.3000	6.4520
BWW4	0.1707	3.6710	0.5531	11.8946	0.1002	2.1548	0.2000	4.3011	0.1850	3.9785	0.2418	5.2000
BWW5	0.5707	12.2731	0.4515	9.7097	0.5865	12.6129	0.5019	10.7935	0.2801	6.0237	0.4781	10.2826
BWW6	1.2150	26.1290	0.8238	17.7161	0.6038	12.9849	0.7855	16.8925	1.0415	22.3978	0.8939	19.2241
BWW AREA											0.4466	9.6038

Appendix G-4. ANOVA for benthic invertebrate biomass for the Wabamun Lake Water Treatment Plant area, November 2002.

```
ONE-WAY ANOVA FOR TOTAL BIOMASS BY AREA

SOURCE     DF       SS          MS          F        P
-------   ----  ---------   ---------   ------   ------
BETWEEN     1    33.3730     33.3730     1.32    0.2768**
WITHIN     10    252.285     25.2285
TOTAL      11    285.658

                        CHI-SQ     DF       P
BARTLETT'S TEST OF      ------   ------   ------
   EQUAL VARIANCES       0.08       1     0.7802

COCHRAN'S Q                         0.5652
LARGEST VAR / SMALLEST VAR          1.2997

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     1.35742
EFFECTIVE CELL SIZE                              6.0

                             SAMPLE       GROUP
   AREA           MEAN        SIZE       STD DEV
---------      ----------    ------    ----------
    1            12.939         6        4.6841
    2            9.6038         6        5.3401
TOTAL            11.271        12        5.0228

CASES INCLUDED 12    MISSING CASES 0
```

---

*   Significant at $p < 0.05$
**   Not Significant at $p > 0.05$

APPENDIX H

BENTHIC INVERTEBRATE TROPHIC COMPUTATIONS AND STATISTICAL ANALYSES, NOVEMBER 2002

Appendix H-1. **Percent composition of benthic invertebrate feeding groups for each sample with means and standard deviation (SD) for the Ash Lagoon area, November 2002.**

Site-Sample	Percent Feeding Group				
	C	H	D	DH	O
AL-1	22.1	21.3	34.7	3.3	18.6
AL-2	19.0	22.9	47.4	3.1	7.6
AL-3	10.2	28.2	54.0	2.7	4.9
AL-4	17.2	25.1	48.1	1.9	7.8
AL-5	18.4	23.6	48.3	2.7	7.0
Mean	**17.4**	**24.2**	**46.5**	**2.7**	**9.2**
SD	**4.4**	**2.6**	**7.1**	**0.5**	**5.4**
ADC-1	3.6	3.5	60.3	6.2	26.4
ADC-2	2.0	2.0	75.5	4.7	15.8
ADC-3	3.7	5.0	71.5	3.4	16.3
ADC-4	0.4	11.2	58.2	8.9	21.3
ADC-5	1.3	3.1	72.9	3.3	19.3
Mean	**2.2**	**5.0**	**67.7**	**5.3**	**19.8**
SD	**1.4**	**3.7**	**7.9**	**2.3**	**4.3**
AW1-1	3.6	54.7	6.5	2.7	32.4
AW1-2	4.3	40.4	7.0	5.7	42.7
AW1-3	5.3	21.4	9.2	18.2	45.9
AW1-4	5.1	12.5	13.2	20.0	49.1
AW1-5	3.4	14.9	15.5	16.5	49.7
Mean	**4.3**	**28.8**	**10.3**	**12.6**	**44.0**
SD	**0.9**	**18.2**	**3.9**	**7.9**	**7.0**
AW2-1	4.4	14.3	4.7	45.6	31.0
AW2-2	5.6	11.7	7.1	34.8	40.9
AW2-3	2.8	20.3	6.6	24.6	45.8
AW2-4	5.5	8.8	9.2	33.8	42.6
AW2-5	3.6	10.3	8.1	36.4	41.5
Mean	**4.4**	**13.1**	**7.1**	**35.0**	**40.4**
SD	**1.2**	**4.5**	**1.7**	**7.5**	**5.6**
AW3-1	4.7	13.6	6.9	29.7	45.1
AW3-2	8.0	14.2	3.6	18.6	55.5
AW3-3	4.5	17.8	5.5	19.5	52.6
AW3-4	2.4	12.4	3.3	23.6	58.3
AW3-5	6.4	16.0	13.6	13.3	50.8
Mean	**5.2**	**14.8**	**6.6**	**20.9**	**52.5**
SD	**2.1**	**2.1**	**4.2**	**6.1**	**5.0**
AW4-1	5.1	9.5	11.8	34.5	39.0
AW4-2	3.4	14.3	7.3	34.5	40.4
AW4-3	5.1	8.0	7.0	39.2	40.7
AW4-4	5.1	16.4	8.3	26.2	43.9
AW4-5	7.4	11.5	4.5	39.5	37.1
Mean	**5.2**	**11.9**	**7.8**	**34.8**	**40.2**
SD	**1.4**	**3.4**	**2.6**	**5.4**	**2.5**

Appendix H-1. (continued)

Site-Sample	Percent Feeding Group				
	C	H	D	DH	O
AW5-1	6.6	14.2	18.1	36.0	25.2
AW5-2	6.3	11.0	24.4	32.0	26.4
AW5-3	6.8	10.2	15.3	39.3	28.5
AW5-4	7.8	9.2	11.5	48.2	23.3
AW5-5	5.6	17.2	19.5	31.4	26.3
Mean	**6.6**	**12.4**	**17.8**	**37.4**	**25.9**
SD	**0.8**	**3.3**	**4.8**	**6.8**	**1.9**
AW6-1	8.2	20.6	10.7	29.0	31.5
AW6-2	6.4	19.2	6.8	23.4	44.3
AW6-3	8.0	16.4	13.1	20.4	42.2
AW6-4	8.3	16.4	7.4	17.2	50.6
AW6-5	15.8	20.5	10.8	13.6	39.3
Mean	**9.3**	**18.6**	**9.8**	**20.7**	**41.6**
SD	**3.7**	**2.1**	**2.6**	**5.9**	**7.0**
AW AREA MEAN	**5.9**	**16.6**	**9.9**	**26.9**	**40.8**
AW AREA SD	**1.9**	**6.4**	**4.1**	**10.2**	**8.6**
BAW1-1	0.5	8.2	1.8	2.0	87.5
BAW1-2	1.4	14.4	1.8	5.3	77.1
BAW1-3	2.8	11.1	2.2	7.9	76.0
BAW1-4	2.4	17.8	1.5	4.1	74.2
BAW1-5	1.9	17.6	0.9	5.0	74.6
Mean	**1.8**	**13.8**	**1.6**	**4.9**	**77.9**
SD	**0.9**	**4.2**	**0.5**	**2.1**	**5.5**
BAW2-1	8.0	7.8	5.6	13.0	65.6
BAW2-2	12.5	10.9	9.9	18.6	48.2
BAW2-3	7.4	20.8	1.5	11.7	58.6
BAW2-4	5.6	24.6	3.4	9.1	57.4
BAW2-5	5.3	24.4	3.2	7.6	59.4
Mean	**7.8**	**17.7**	**4.7**	**12.0**	**57.8**
SD	**2.9**	**7.8**	**3.2**	**4.3**	**6.3**
BAW3-1	4.1	7.5	12.4	13.0	62.9
BAW3-2	7.4	11.9	12.0	25.5	43.2
BAW3-3	8.7	7.9	11.1	36.1	36.2
BAW3-4	9.1	13.5	6.0	18.7	52.6
BAW3-5	5.8	15.0	3.8	10.6	64.8
Mean	**7.0**	**11.2**	**9.1**	**20.8**	**51.9**
SD	**2.1**	**3.3**	**3.9**	**10.3**	**12.3**
BAW4-1	1.8	3.3	3.4	3.6	87.8
BAW4-2	6.7	12.0	4.1	10.7	66.4
BAW4-3	7.0	15.2	4.1	14.7	59.0
BAW4-4	4.4	5.9	3.1	7.4	79.2
BAW4-5	3.2	5.0	3.9	5.7	82.1
Mean	**4.6**	**8.3**	**3.7**	**8.4**	**74.9**
SD	**2.2**	**5.1**	**0.4**	**4.4**	**11.9**

Appendix H-1. (concluded)

Site-Sample	Percent Feeding Group				
	C	H	D	DH	O
BAW5-1	4.4	18.2	7.2	11.5	58.7
BAW5-2	3.7	25.9	4.7	6.6	59.1
BAW5-3	2.8	15.2	8.7	12.3	61.0
BAW5-4	6.8	11.9	14.1	14.9	52.4
BAW5-5	3.2	18.7	5.3	13.8	58.9
Mean	**4.2**	**18.0**	**8.0**	**11.8**	**58.0**
SD	**1.6**	**5.2**	**3.8**	**3.2**	**3.3**
BAW6-1	12.1	22.0	6.0	12.3	47.6
BAW6-2	6.1	30.7	4.8	9.8	48.7
BAW6-3	6.6	35.6	4.0	7.8	46.1
BAW6-4	5.2	27.0	6.9	8.0	52.8
BAW6-5	4.7	19.6	6.1	4.7	64.9
Mean	**6.9**	**27.0**	**5.6**	**8.5**	**52.0**
SD	**3.0**	**6.5**	**1.2**	**2.8**	**7.6**
BAW AREA MEAN	**5.4**	**16.0**	**5.5**	**11.1**	**62.1**
BAW AREA SD	**2.3**	**6.6**	**2.7**	**5.4**	**11.4**

Appendix H-2. ANOVA for benthic invertebrate feeding groups for the Ash Lagoon area, November 2002.

ONE-WAY ANOVA FOR CARNIVORES BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.60750     0.60750     0.14    0.7162**
WITHIN     10     43.4217     4.34217
TOTAL      11     44.0292

                          CHI-SQ     DF       P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES         0.15       1     0.6996

COCHRAN'S Q                          0.5898
LARGEST VAR / SMALLEST VAR           1.4376

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    -0.62244
EFFECTIVE CELL SIZE                              6.0

                               SAMPLE      GROUP
   AREA            MEAN         SIZE      STD DEV
---------      ----------      ------   ----------
    1            5.8333          6        1.8875
    2            5.3833          6        2.2631
TOTAL            5.6083         12        2.0838

CASES INCLUDED 12    MISSING CASES 0
```

ONE-WAY ANOVA FOR HERBIVORES BY AREA

```
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     1.08000     1.08000     0.03    0.8762**
WITHIN     10     423.040     42.3040
TOTAL      11     424.120

                          CHI-SQ     DF       P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES         0.00       1     0.9715

COCHRAN'S Q                          0.5084
LARGEST VAR / SMALLEST VAR           1.0340

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    -6.87067
EFFECTIVE CELL SIZE                              6.0

                               SAMPLE      GROUP
   AREA            MEAN         SIZE      STD DEV
---------      ----------      ------   ----------
    1            16.600          6        6.4495
    2            16.000          6        6.5584
TOTAL            16.300         12        6.5042

CASES INCLUDED 12    MISSING CASES 0
```

```
*    Significant at p < 0.05
**   Not Significant at p > 0.05
```

```
ONE-WAY ANOVA FOR DETRITIVORES BY AREA

SOURCE    DF       SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    1    59.8533     59.8533     4.85    0.0523**
WITHIN    10    123.463     12.3463
TOTAL     11    183.317

                          CHI-SQ    DF       P
BARTLETT'S TEST OF        ------  ------  ------
   EQUAL VARIANCES         0.71     1     0.4003

COCHRAN'S Q                         0.6898
LARGEST VAR / SMALLEST VAR          2.2240

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    7.91783
EFFECTIVE CELL SIZE                             6.0

                               SAMPLE     GROUP
   AREA             MEAN        SIZE     STD DEV
---------        ----------    ------   ----------
    1              9.9167        6        4.1272
    2              5.4500        6        2.7675
TOTAL              7.6833       12        3.5137

CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY ANOVA FOR DETRITIVORE/HERBIVORES BY AREA

SOURCE    DF       SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    1    752.083     752.083    11.31    0.0072*
WITHIN    10    665.073     66.5073
TOTAL     11    1417.16

                          CHI-SQ    DF       P
BARTLETT'S TEST OF        ------  ------  ------
   EQUAL VARIANCES         1.68     1     0.1955

COCHRAN'S Q                         0.7777
LARGEST VAR / SMALLEST VAR          3.4976

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    114.263
EFFECTIVE CELL SIZE                             6.0

                               SAMPLE     GROUP
   AREA             MEAN        SIZE     STD DEV
---------        ----------    ------   ----------
    1              26.900        6        10.171
    2              11.067        6        5.4383
TOTAL              18.983       12        8.1552

CASES INCLUDED 12    MISSING CASES 0
```

```
*    Significant at p < 0.05
**   Not Significant at p > 0.05
```

Appendix H-2. (concluded)

```
ONE-WAY AOV FOR OMNIVORES BY AREA

SOURCE     DF        SS           MS          F        P
-------   ----   ---------    ---------    ------   ------
BETWEEN     1     1363.20      1363.20     13.30    0.0045*
WITHIN     10     1025.12      102.512
TOTAL      11     2388.32

                          CHI-SQ      DF        P
BARTLETT'S TEST OF        ------    ------   ------
   EQUAL VARIANCES         0.36        1     0.5461

COCHRAN'S Q                         0.6388
LARGEST VAR / SMALLEST VAR          1.7684

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     210.115
EFFECTIVE CELL SIZE                              6.0

                            SAMPLE      GROUP
  AREA           MEAN        SIZE      STD DEV
---------     ----------    ------   ----------
    1            40.767        6        8.6057
    2            62.083        6        11.444
TOTAL            51.425       12        10.125

CASES INCLUDED 12    MISSING CASES 0
```

---

*   Significant at $p < 0.05$
**   Not Significant at $p > 0.05$

Appendix H-3. Percent composition of benthic invertebrate feeding groups for each sample with means and standard deviation (SD) for the Wabamun Lake Water Treatment Plant area, November 2002.

Site-Sample	Percent Feeding Group				
	C	H	D	DH	O
WDC-1	8.1	2.4	65.5	10.2	13.9
WDC-2	3.1	12.2	52.0	8.2	24.5
WDC-3	4.6	19.5	48.6	6.1	21.3
WDC-4	7.5	12.7	35.9	8.8	35.1
WDC-5	2.9	11.7	48.9	8.1	28.4
Mean	**5.2**	**11.7**	**50.2**	**8.3**	**24.6**
SD	**2.4**	**6.1**	**10.6**	**1.5**	**7.9**
WW1-1	3.4	10.8	35.6	5.1	45.1
WW1-2	5.0	8.3	49.8	2.4	34.4
WW1-3	3.3	21.6	39.5	2.5	33.1
WW1-4	7.3	8.3	25.1	15.2	44.1
WW1-5	1.5	10.4	21.4	3.7	63.1
Mean	**4.1**	**11.9**	**34.3**	**5.8**	**44.0**
SD	**2.2**	**5.6**	**11.4**	**5.4**	**12.0**
WW2-1	1.0	25.5	32.4	3.7	37.5
WW2-2	3.0	26.0	32.5	2.1	36.4
WW2-3	2.4	21.5	27.5	4.4	44.2
WW2-4	5.3	30.8	21.9	2.3	39.7
WW2-5	4.5	26.5	38.7	2.4	28.0
Mean	**3.2**	**26.1**	**30.6**	**3.0**	**37.2**
SD	**1.7**	**3.3**	**6.3**	**1.0**	**5.9**
WW3-1	8.8	7.5	57.0	5.8	20.8
WW3-2	9.7	13.8	45.2	7.5	23.8
WW3-3	16.0	10.6	34.4	8.5	30.5
WW3-4	12.0	8.1	48.2	7.7	24.0
WW3-5	7.8	20.7	22.1	9.6	39.9
Mean	**10.9**	**12.1**	**41.4**	**7.8**	**27.8**
SD	**3.3**	**5.4**	**13.5**	**1.4**	**7.6**
WW4-1	2.3	12.8	44.2	1.8	38.9
WW4-2	2.7	11.1	32.9	2.7	50.8
WW4-3	2.3	14.3	36.7	2.1	44.6
WW4-4	1.0	17.5	40.8	2.1	38.6
WW4-5	0.1	10.7	36.7	1.5	51.0
Mean	**1.7**	**13.3**	**38.3**	**2.0**	**44.8**
SD	**1.1**	**2.8**	**4.3**	**0.4**	**6.1**
WW5-1	0.1	16.2	26.7	1.5	55.6
WW5-2	0.4	7.0	18.4	1.9	72.3
WW5-3	0.1	14.3	12.3	0.8	72.5
WW5-4	0.1	22.0	28.0	4.1	45.8
WW5-5	0.6	18.0	21.4	3.7	56.4
Mean	**0.3**	**15.5**	**21.4**	**2.4**	**60.5**
SD	**0.2**	**5.5**	**6.4**	**1.4**	**11.6**

Appendix H-3. **(continued)**

Site-Sample	Percent Feeding Group				
	C	H	D	DH	O
WW6-1	0.2	7.2	12.7	0.3	79.6
WW6-2	<0.0	2.7	2.6	<0.0	94.6
WW6-3	0.1	6.1	3.6	0.4	89.8
WW6-4	1.8	12.7	21.0	2.7	61.9
WW6-5	0.5	14.8	18.4	1.8	64.5
Mean	**0.7**	**8.7**	**11.7**	**1.3**	**78.1**
SD	**0.8**	**5.0**	**8.4**	**1.2**	**14.7**
WW AREA MEAN	**3.5**	**14.6**	**29.6**	**3.7**	**48.7**
WW AREA SD	**3.9**	**6.0**	**11.2**	**2.5**	**17.9**
BWW1-1	5.4	18.4	18.3	27.0	30.8
BWW1-2	5.1	20.2	19.5	31.3	23.9
BWW1-3	5.3	15.2	19.3	27.5	32.8
BWW1-4	6.4	18.7	13.6	11.0	50.3
BWW1-5	6.9	17.2	14.8	16.1	45.1
Mean	**5.8**	**17.9**	**17.1**	**22.6**	**36.6**
SD	**0.8**	**1.9**	**2.7**	**8.6**	**10.8**
BWW2-1	7.8	25.7	14.3	24.0	28.2
BWW2-2	2.7	42.3	7.7	14.5	32.8
BWW2-3	5.2	23.9	13.8	25.8	31.4
BWW2-4	5.1	24.1	15.0	31.0	24.7
BWW2-5	5.9	33.2	11.3	15.7	33.8
Mean	**5.3**	**29.8**	**12.4**	**22.2**	**30.2**
SD	**1.8**	**7.9**	**3.0**	**7.0**	**3.7**
BWW3-1	6.9	25.2	10.5	27.6	29.9
BWW3-2	8.1	23.8	10.4	23.2	34.4
BWW3-3	4.5	15.3	12.0	24.0	44.1
BWW3-4	4.3	20.7	16.3	24.6	34.1
BWW3-5	6.0	22.9	16.6	21.8	32.8
Mean	**6.0**	**21.6**	**13.2**	**24.2**	**35.1**
SD	**1.6**	**3.9**	**3.1**	**2.2**	**5.4**
BWW4-1	7.3	20.9	12.3	25.8	33.7
BWW4-2	4.5	26.6	6.1	27.5	35.3
BWW4-3	5.8	23.2	10.9	21.9	38.2
BWW4-4	5.9	23.3	20.1	27.3	23.5
BWW4-5	8.8	15.5	11.2	37.9	26.6
Mean	**6.5**	**21.9**	**12.1**	**28.1**	**31.5**
SD	**1.6**	**4.1**	**5.1**	**5.9**	**6.2**
BWW5-1	2.0	21.4	7.8	18.4	50.4
BWW5-2	5.5	21.2	10.6	25.3	37.3
BWW5-3	2.4	11.9	16.8	19.2	49.7
BWW5-4	3.7	22.3	7.4	18.7	48.0
BWW5-5	5.4	26.5	7.9	19.9	40.3
Mean	**3.8**	**20.7**	**10.1**	**20.3**	**45.1**
SD	**1.6**	**5.3**	**4.0**	**2.9**	**5.9**

Appendix H-3. (concluded)

Site-Sample	Percent Feeding Group				
	C	H	D	DH	O
BWW6-1	4.4	10.4	11.3	18.1	55.8
BWW6-2	4.4	11.2	10.2	11.9	62.4
BWW6-3	3.8	13.4	12.2	24.0	46.5
BWW6-4	4.3	18.5	7.3	17.8	52.2
BWW6-5	4.2	17.0	11.1	24.5	43.2
Mean	**4.2**	**14.1**	**10.4**	**19.3**	**52.0**
SD	**0.2**	**3.5**	**1.9**	**5.2**	**7.6**
BWW AREA MEAN	**5.3**	**21.0**	**12.6**	**22.8**	**38.4**
BWW AREA SD	**1.0**	**5.2**	**2.5**	**3.1**	**8.5**

Appendix H-4. ANOVA for benthic invertebrate feeding groups for the Wabamun Lake Water Treatment Plant area, November 2002.

```
ONE-WAY ANOVA FOR CARNIVORES BY AREA

SOURCE     DF       SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     9.54083     9.54083     1.16    0.3065**
WITHIN     10     82.1617     8.21617
TOTAL      11     91.7025

                      CHI-SQ      DF        P
BARTLETT'S TEST OF    ------    ------    ------
   EQUAL VARIANCES     6.20        1      0.0128

COCHRAN'S Q                          0.9314
LARGEST VAR / SMALLEST VAR           13.585

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.22078
EFFECTIVE CELL SIZE                              6.0

                            SAMPLE      GROUP
   AREA           MEAN       SIZE      STD DEV
---------     ----------    ------    ----------
    1           3.4833        6         3.9122
    2           5.2667        6         1.0614
TOTAL           4.3750       12         2.8664

CASES INCLUDED 12     MISSING CASES 0
```

```
ONE-WAY ANOVA FOR HERBIVORES BY AREA

SOURCE     DF       SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     125.453     125.453     3.95    0.0751**
WITHIN     10     317.943     31.7943
TOTAL      11     443.397

                      CHI-SQ      DF        P
BARTLETT'S TEST OF    ------    ------    ------
   EQUAL VARIANCES     0.10        1      0.7496

COCHRAN'S Q                          0.5744
LARGEST VAR / SMALLEST VAR           1.3498

COMPONENT OF VARIANCE FOR BETWEEN GROUPS     15.6098
EFFECTIVE CELL SIZE                              6.0

                            SAMPLE      GROUP
   AREA           MEAN       SIZE      STD DEV
---------     ----------    ------    ----------
    1           14.550        6         6.0438
    2           21.017        6         5.2021
TOTAL           17.783       12         5.6386

CASES INCLUDED 12     MISSING CASES 0
```

```
*    Significant at p < 0.05
**   Not Significant at p > 0.05
```

Appendix H-4. (continued)

```
ONE-WAY ANOVA FOR DETRITIVORES BY AREA

SOURCE     DF        SS           MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     872.108     872.108     13.30   0.0045*
WITHIN     10     655.915     65.5915
TOTAL      11     1528.02

                          CHI-SQ     DF       P
BARTLETT'S TEST OF        ------   ------  ------
   EQUAL VARIANCES         7.66       1    0.0057

COCHRAN'S Q                          0.9513
LARGEST VAR / SMALLEST VAR          19.513

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    134.419
EFFECTIVE CELL SIZE                             6.0

                            SAMPLE     GROUP
  AREA           MEAN        SIZE     STD DEV
---------    ----------    ------   ----------
    1          29.600        6        11.171
    2          12.550        6        2.5288
TOTAL          21.075       12        8.0989

CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY ANOVA FOR DETRITIVORE/HERBIVORES BY AREA

SOURCE     DF        SS           MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     1090.61     1090.61    134.65   0.0000*
WITHIN     10     80.9967     8.09967
TOTAL      11     1171.61

                          CHI-SQ     DF       P
BARTLETT'S TEST OF        ------   ------  ------
   EQUAL VARIANCES         0.20       1    0.6529

COCHRAN'S Q                          0.6043
LARGEST VAR / SMALLEST VAR          1.5273

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    180.419
EFFECTIVE CELL SIZE                             6.0

                            SAMPLE     GROUP
  AREA           MEAN        SIZE     STD DEV
---------    ----------    ------   ----------
    1          3.7167        6        2.5317
    2          22.783        6        3.1288
TOTAL          13.250       12        2.8460

CASES INCLUDED 12    MISSING CASES 0
```

```
*     Significant at p < 0.05
**    Not Significant at p > 0.05
```

```
ONE-WAY ANOVA FOR OMNIVORES BY AREA

SOURCE     DF       SS          MS         F        P
-------   ----  ---------   ---------   ------   ------
BETWEEN     1     319.301     319.301     1.62   0.2316**
WITHIN     10     1968.78     196.878
TOTAL      11     2288.08

                       CHI-SQ     DF        P
BARTLETT'S TEST OF     ------   ------   ------
   EQUAL VARIANCES       2.35      1     0.1252

COCHRAN'S Q                        0.8177
LARGEST VAR / SMALLEST VAR         4.4867

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    20.4038
EFFECTIVE CELL SIZE                             6.0

                              SAMPLE     GROUP
   AREA            MEAN        SIZE     STD DEV
---------     ----------    ------   ----------
    1             48.733        6        17.944
    2             38.417        6        8.4715
TOTAL             43.575       12        14.031

CASES INCLUDED 12    MISSING CASES 0
```

---

*   Significant at p < 0.05
**   Not Significant at p > 0.05